THE ULTIMATE GUIDE TO CARTOONS AND ANIMATION FOR THE WEB, TV AND FILM

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THE IN-DEPTH GUIDE FOR DIGITAL CREATIVES

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ALSO IN THIS ISSUE:

- JibJab, Fictitious Egg, Triffic and Richard Williams in profile
- Make money from your cartoons!
- 3D animation masterclass: bring your characters to life!

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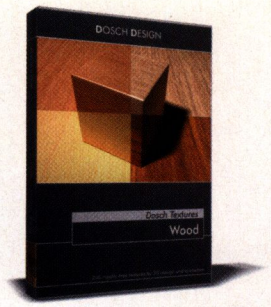

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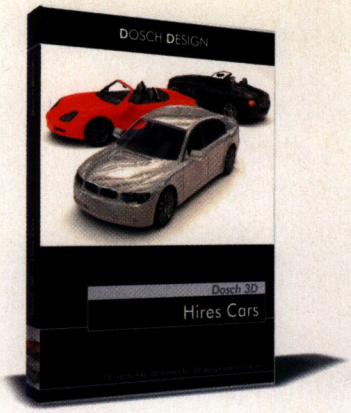

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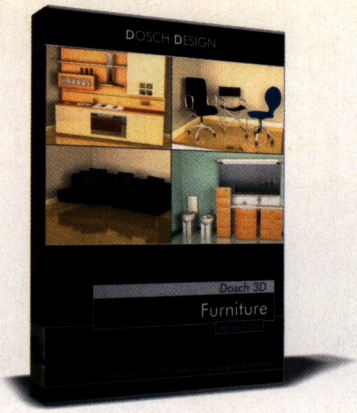

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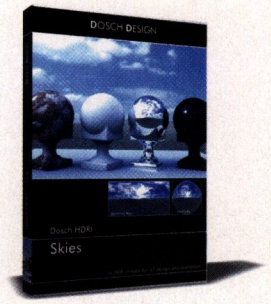

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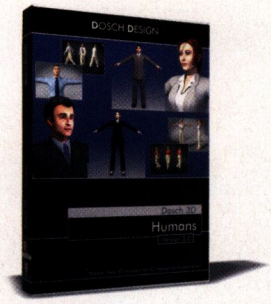

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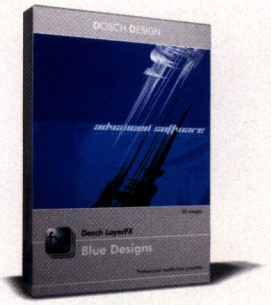

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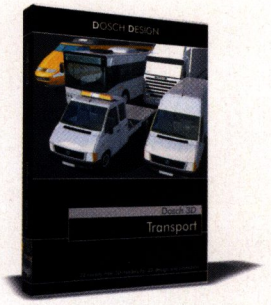

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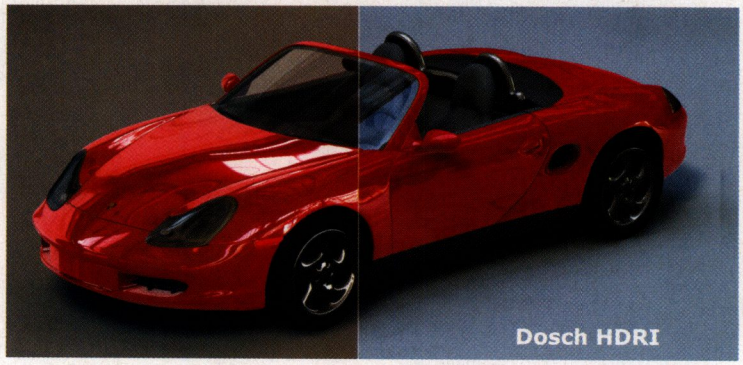

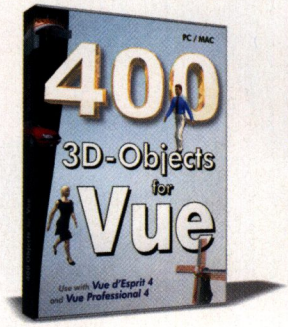

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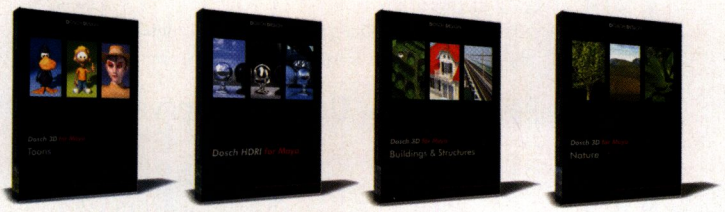

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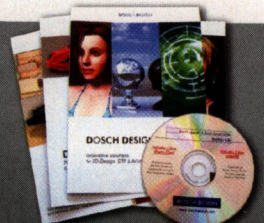

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Welcome

Walt Disney once commented, "If you can dream it, you can do it." He was, of course, referring to the art of animation, and that anything is possible if you have the patience, ideas and drive. Today, this is even more significant. With the birth of both 2D and 3D animation tools that will run on virtually any desktop PC, it's even easier to achieve your animated dreams.

And that's why we've dedicated an entire issue to the art of cartoons and animation. Over the following pages we bring you the best in animation for the Web, TV and film. You'll learn the fascinating cut-out techniques of leading Web cartoon studio JibJab, pick up essential advice on preparing your *Flash* movies for broadcast from the fantastic Fictitious Egg, and learn all about the inspiration behind the leading cartoon and animation studios in the world today.

There's never been a better time to get into animation. Whether you're interested in computer-generated 2D imagery that echoes the style of such animators as the legendary Tex Avery (*Porky Pig, Daffy Duck* et al), the 3D images of today from Framestore CFC (*Walking with Dinosaurs*), or even the stop-motion techniques of Aardman Animations (*Morph, Wallace and Gromit, Creature Comforts*), there's something in this issue for you.

Rob Carney, Associate Editor

Tell us what topics you'd like to see covered in-depth in *Computer Arts Projects*. Contact us on: **rob.carney@futurenet.co.uk**

Contributing artists

COVER ILLUSTRATION
Twelve:Ten

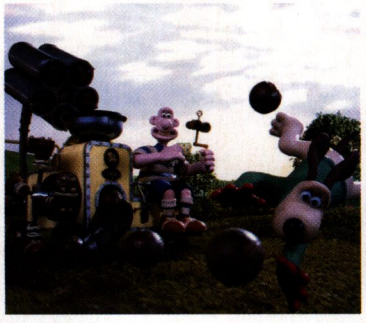
Leading UK design agency Twelve:Ten created this fantastic retro illustration. The brief was to draw on the identity of famous cartoon lettering while delivering a modern and exciting look.

[w] www.twelveten.com

Andy Wyatt, Fictitious Egg

Andy Wyatt is founder and Animation Director of Fictitious Egg. The company's recent projects include *The State We're In* (left) and *Pop Skool* – a series of shorts commissioned by the BC. Learn the company's secrets with our exclusive tutorial beginning on page 48.

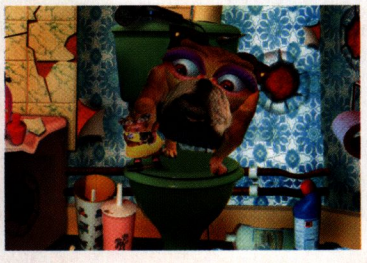
[w] www.eggtoons.com



Aardman Animations

Aardman is one of the world's most renowned animation companies, famous for such groundbreaking creations as *Morph, Wallace and Gromit* and *Creature Comforts*. Find out about the company's history, inspiration and working practice with our 'cracking' feature beginning on page 56.

[w] www.aardman.com



Triffic Films

This UK-based animation house has just completed work on *I Am Not An Animal* (left) – the latest animated comedy from Steve Coogan. It's also famous for its work on *Have I got News for You, Gimme Gimme Gimme* and *2DTV*. Follow our fantastic tutorial starting on page 66.

[w] www.triffic.co.uk

We're always on the lookout for new artists as well as established creatives – so if you're interested in contributing to the magazine, please send some examples of your work to **[e]richard.llewellyn@futurenet.co.uk**

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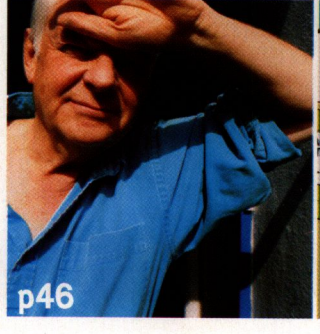

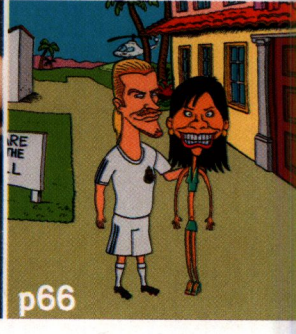

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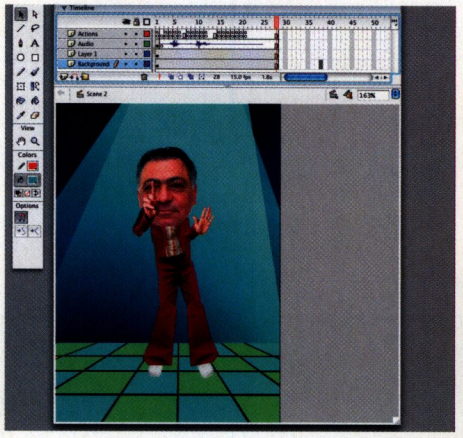
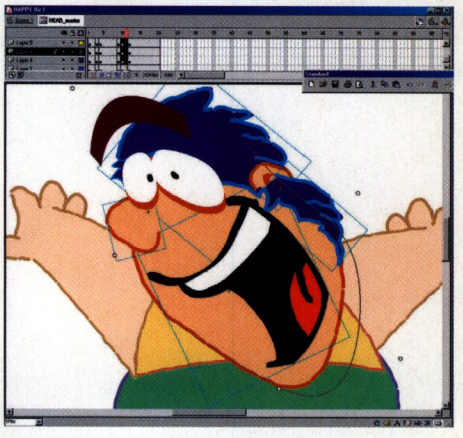
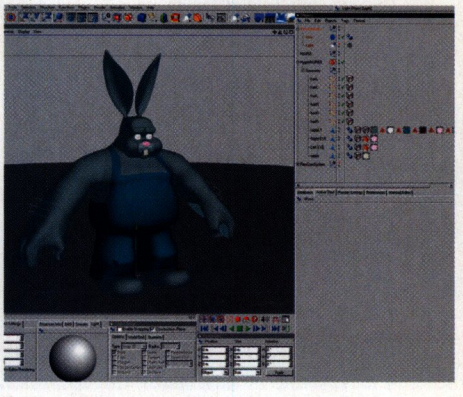
Learn how to rig and animate a character using *Cinema 4D* – expert tutorial and all the files you need on your cover CD.







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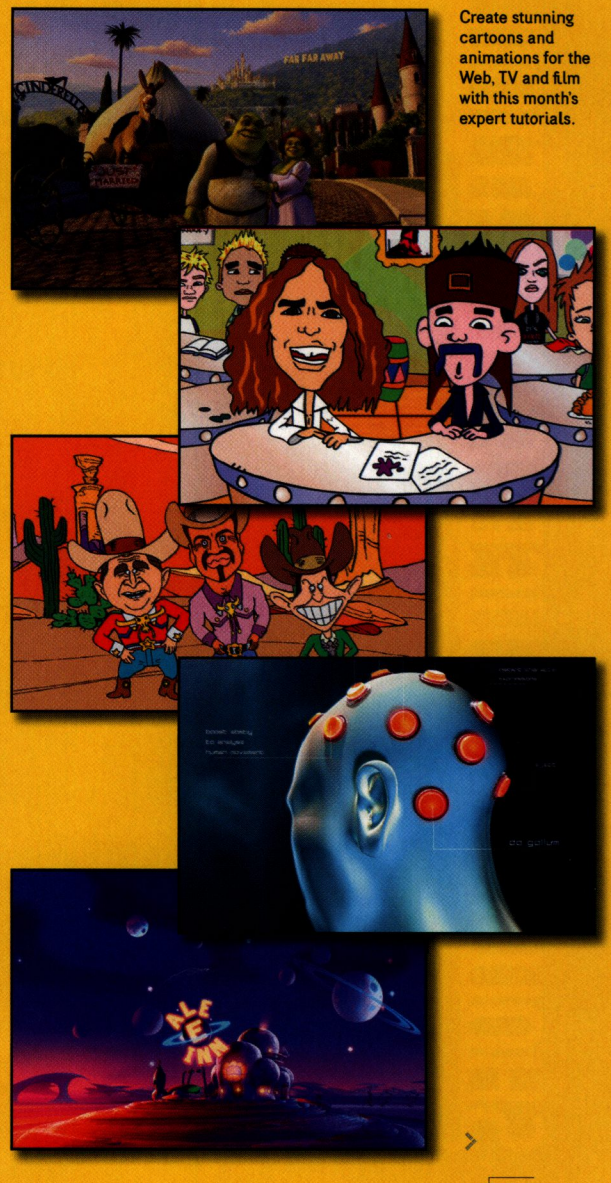
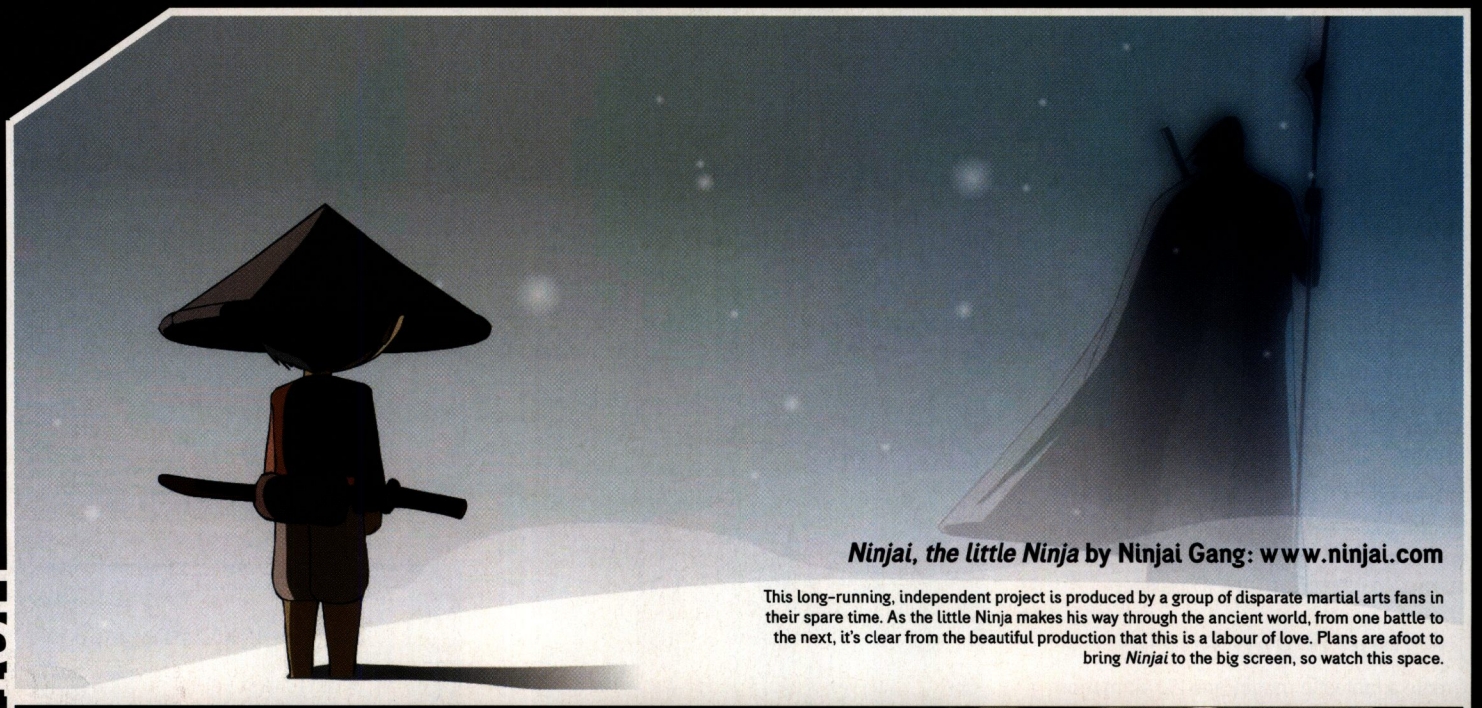


Create stunning cartoons and animations for the Web, TV and film with this month's expert tutorials.

A Close Shave © Aardman/Wallace & Gromit 1995

SHOWCASE: WEB ANIMATION

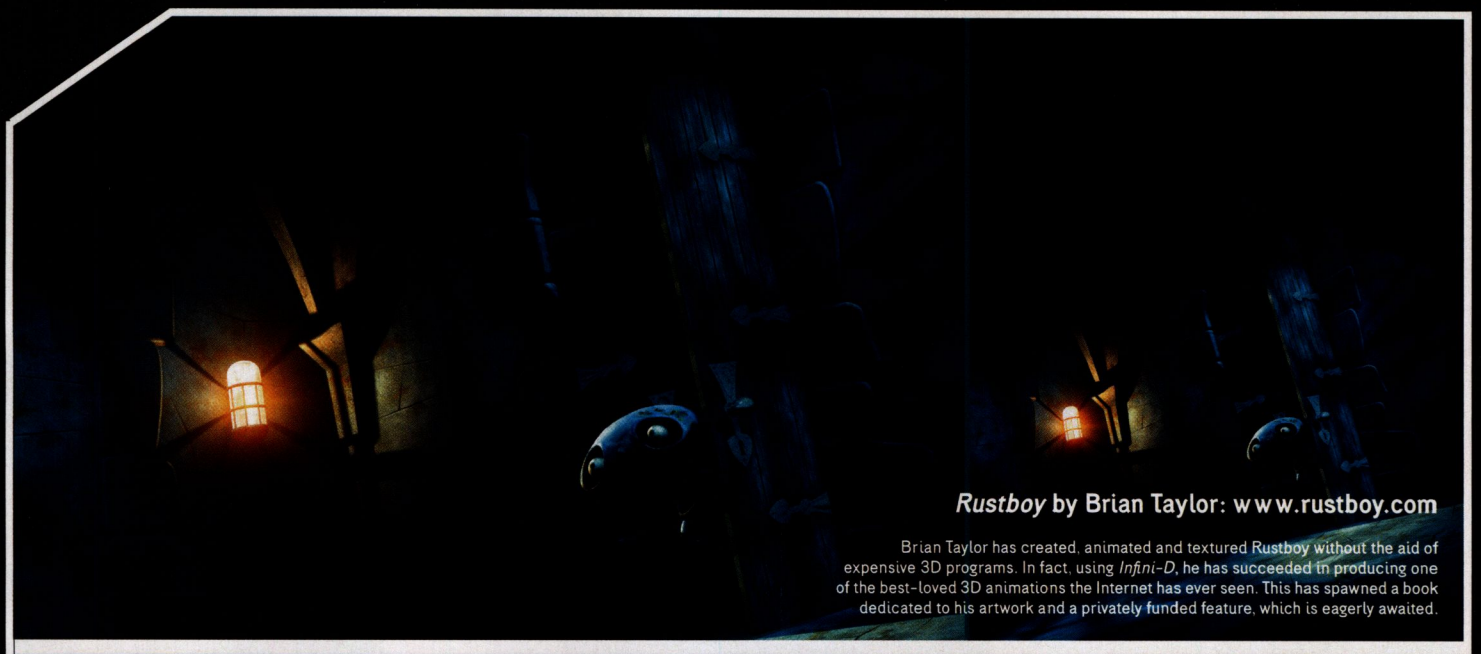


***Ninjai, the little Ninja* by Ninjai Gang: www.ninjai.com**

This long-running, independent project is produced by a group of disparate martial arts fans in their spare time. As the little Ninja makes his way through the ancient world, from one battle to the next, it's clear from the beautiful production that this is a labour of love. Plans are afoot to bring *Ninjai* to the big screen, so watch this space.

***Mutafukaz* by Team Chman: www.mutafukaz.com/pilot**

Hunted to their roach-infested flat by CIA-style bad guys, our two animated heroes have no choice but to cut and run. The award-winning pilot episode of *Mutafukaz* is great fun to watch and with the next episode now overdue, all eyes are on Team Chman, the very cool French multimedia outfit behind the original.



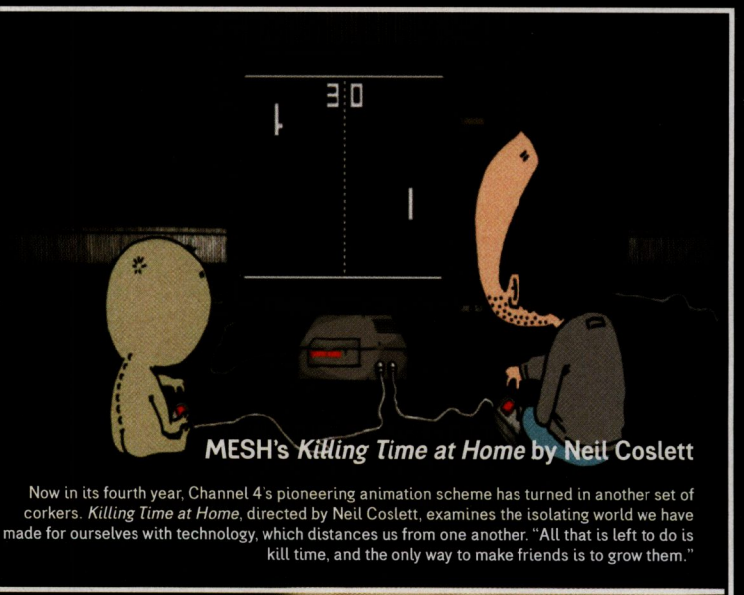
***Rustboy* by Brian Taylor: www.rustboy.com**

Brian Taylor has created, animated and textured Rustboy without the aid of expensive 3D programs. In fact, using *Infini-D*, he has succeeded in producing one of the best-loved 3D animations the Internet has ever seen. This has spawned a book dedicated to his artwork and a privately funded feature, which is eagerly awaited.

***Animatrix* by various artists: www.theanimatrix.com**

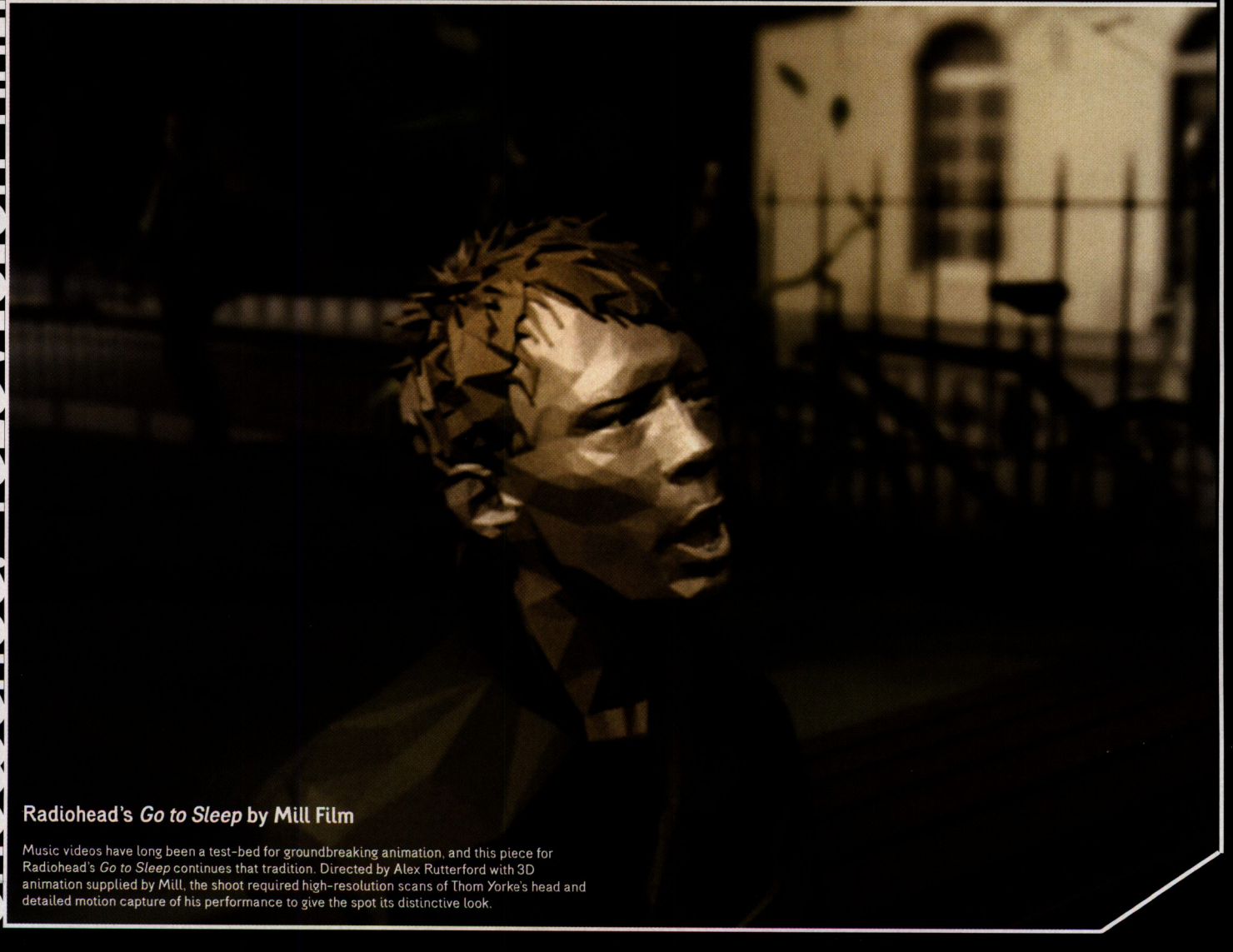
Produced by some of the biggest names in Japanese animation, the full set of *Animatrix* shorts are out on DVD, but four of the best are still available online. The most exciting of the free episodes is Shinichiro Watanabe's *Detective Story*. Watanabe, famed director of *Cowboy Bebop*, has woven a convincingly noirish story around the standard *Matrix* universe.

SHOWCASE: TELEVISION ANIMATION



MESH's *Killing Time at Home* by Neil Coslett

Now in its fourth year, Channel 4's pioneering animation scheme has turned in another set of corkers. *Killing Time at Home*, directed by Neil Coslett, examines the isolating world we have made for ourselves with technology, which distances us from one another. "All that is left to do is kill time, and the only way to make friends is to grow them."

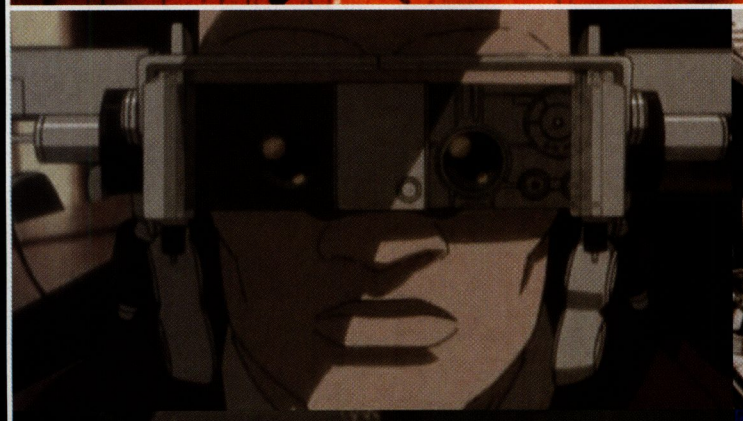


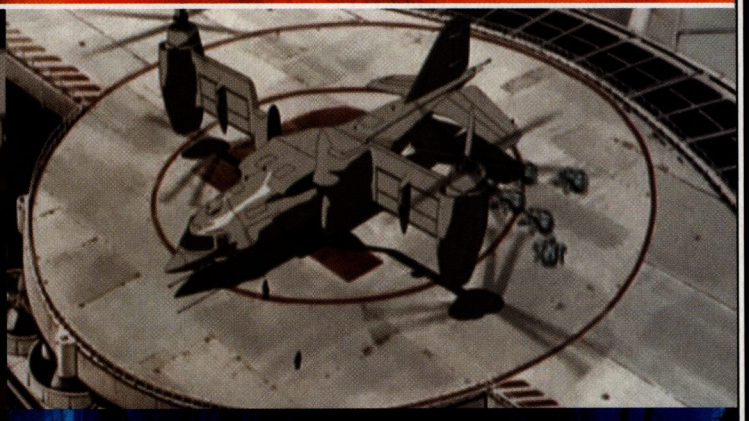
Radiohead's *Go to Sleep* by Mill Film

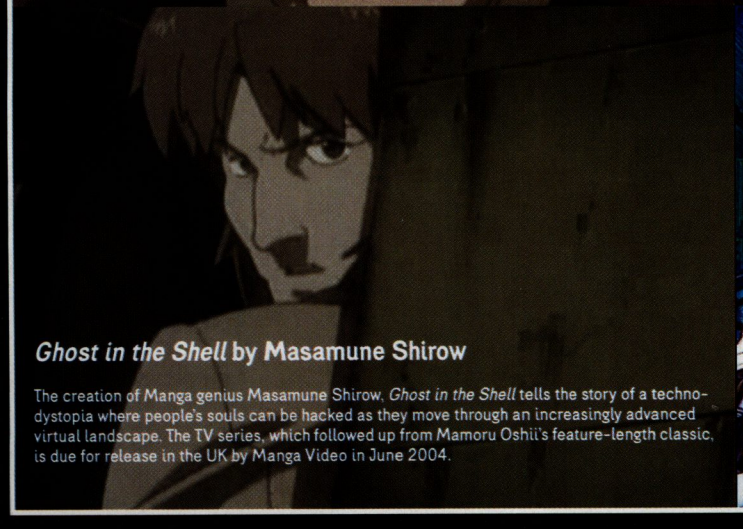
Music videos have long been a test-bed for groundbreaking animation, and this piece for Radiohead's *Go to Sleep* continues that tradition. Directed by Alex Rutterford with 3D animation supplied by Mill, the shoot required high-resolution scans of Thom Yorke's head and detailed motion capture of his performance to give the spot its distinctive look.

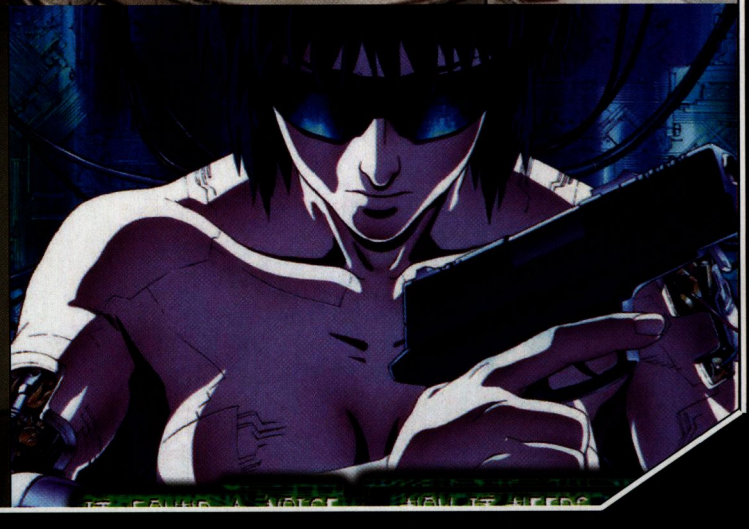
***Puleng* by Nexus**

This vivid and inventive short is the first by director Ali Taylor, and comes as part of Channel 4 and the National Museum of Photography Film and Television's Animator in Residence scheme. Produced by Charlotte Bavasso at Nexus London, the story follows a young girl's battle to save her father's life, set against the dramatic background of the South African landscape at the end of a long drought.









***Ghost in the Shell* by Masamune Shirow**

The creation of Manga genius Masamune Shirow, *Ghost in the Shell* tells the story of a techno-dystopia where people's souls can be hacked as they move through an increasingly advanced virtual landscape. The TV series, which followed up from Mamoru Oshii's feature-length classic, is due for release in the UK by Manga Video in June 2004.

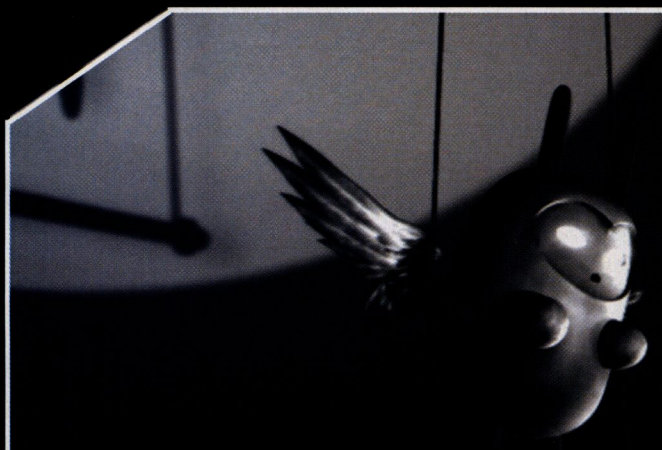
SHOWCASE: FILM ANIMATION

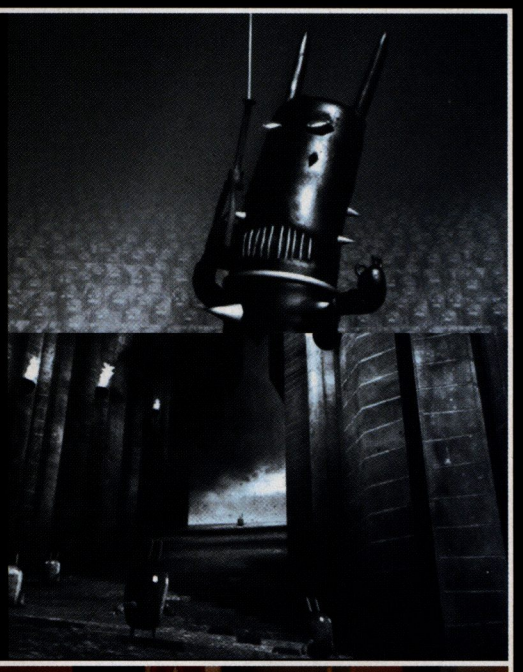
Valiant by Ealing Studios

The story of a British carrier pigeon's battle against a squadron of marauding German falcons during WW1, *Valiant* is currently in production at London's Ealing Studios. The £40 million feature animation is being produced by John *'Shrek'* Williams, and boasts the voices of Ewan McGregor, Ben Kingsley and Ricky Gervais to name but a few. The scheduled release date is November 2004.

Shrek 2 by Dreamworks

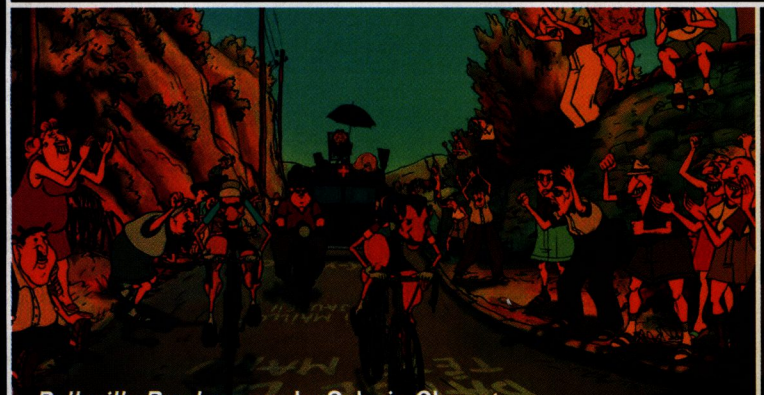
The second instalment of life with everyone's favourite ogre, ogress and talking donkey promises to be as hilariously knowing and brilliantly made as the first. Following directly from where *Shrek* left off, the sequel sees the newly weds hit their first real obstacle when Shrek's unsympathetic in-laws take out a contract to have him 'whacked' by Puss in Boots...





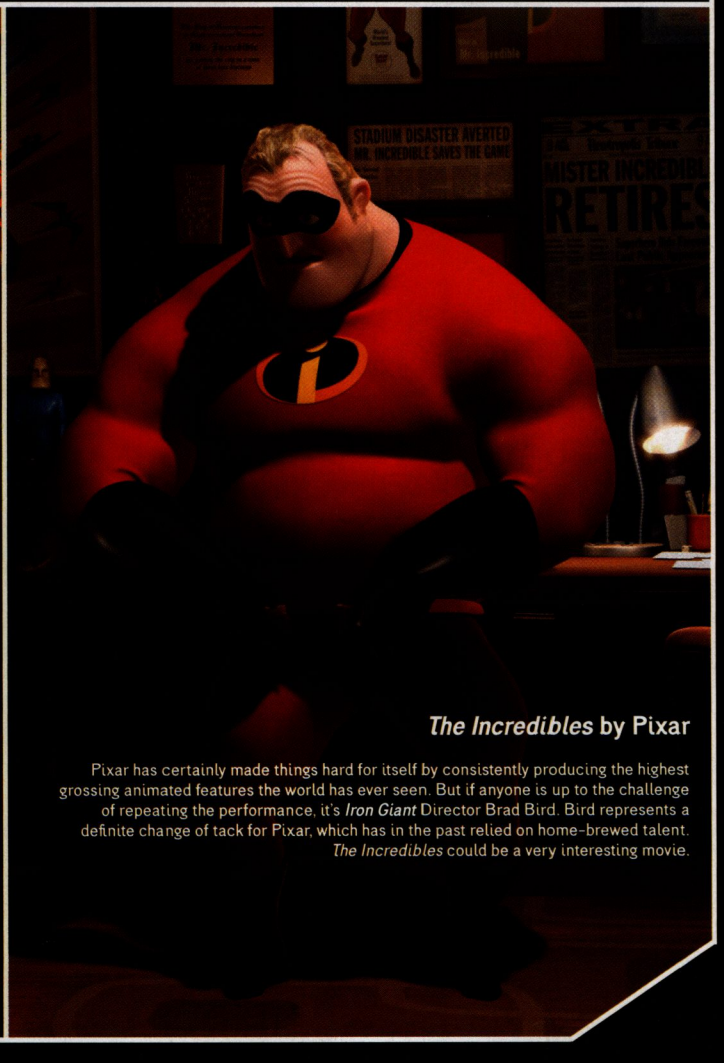
Jojo in the Stars by Studio AKA

Winner of the 2004 BAFTA for short animation, *Jojo* was funded and produced in London by Studio AKA. Conceived and directed by Marc Craste, *Jojo* tells the peculiar story of a loved and betrayed trapeze artist in a monochrome wonderland. According to Philip Hunt, Creative Director of AKA, "Everyone pitched in with *Jojo* and that has had a profound effect on our way of working."



Belleville Rendez-vous by Sylvain Chomet

From Cannes to Edinburgh, this film has garnered high praise from festival juries and viewers alike. Stunningly realised in a distinctive 2D, hand-drawn style by French comic book artist Sylvain Chomet, *Belleville* is largely dialogue free. Instead, the 80-minute feature relies on brilliant caricature and a suitably bizarre cycling-related abduction plot to be entirely addictive.



The Incredibles by Pixar

Pixar has certainly made things hard for itself by consistently producing the highest grossing animated features the world has ever seen. But if anyone is up to the challenge of repeating the performance, it's *Iron Giant* Director Brad Bird. Bird represents a definite change of tack for Pixar, which has in the past relied on home-brewed talent. *The Incredibles* could be a very interesting movie.

SECTION ONE: CARTOONS AND ANIMATION FOR THE WEB

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We talk to leading US Web cartoon studio JibJab Media about its inspiration, techniques and irreverent animations.

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In this exclusive tutorial, JibJab Media guides you through the process of creating a fantastic interactive collage-style animation in *Photoshop* and *Flash*.

p22 FEATURE: A history of animation: 1928–2004

We chart the history of the moving image, beginning with the seminal 1928 cartoon *Steamboat Willie* and finishing with this year's surefire blockbuster, *Shrek 2*.

p26 TUTORIAL: Animating in Toon Boom Studio

Learn the basics of creating dynamic multiplane animations in this fantastic 2D animation package. Follow our expert tutorial using the 30-day *Toon Boom Express* demo on your cover CD!

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Made a cartoon you're particularly proud of? Want to showcase it on the Web and make money from it? We show you how, with a little help from some leading Web animators.

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Whether you're into 2D, 3D or stop-motion, these essential animation tips should never be far from your desk! Everything you need to know to become a great animator.

CREATE GREAT WEB CARTOONS

The Web has become a breeding ground for great animated content. Naturally, the arrival of *Flash* from Macromedia in 1997 (acquired from FutureWave software) saw the introduction of a tool that made it extremely easy for anyone to get animations on the Web. Although the *Flash* of yesteryear is nothing like that of the Web application-driven *Flash MX 2004* of today, there is still an underlying animation toolset that the majority of animators are using – take the highly entertaining and brilliantly executed cartoons from JibJab for instance. See our profile and exclusive tutorial beginning on page 16.

Subsequent specialised Web animation tools have appeared, including the excellent *Toon Boom Studio*. This is built around the high-end animation toolset of *USAnimation* – an application that has been used on such 2D animated features as *Rugrats go Wild!*, *The Jungle Book 2* and *The Triplets of Belleville*. *Toon Boom Studio* brings multiplane animation, along with traditional dope sheet and sceneplanning tools to those working on animations for the Web. Get started with the app using our tutorial on page 26.

The world of Web animation is constantly evolving, with new tools and techniques appearing on an almost daily basis. To get you started in the medium, the following section of this issue gives you everything you need to know about creating great cartoons from the experts – and how to promote and market them...

1, 2 & 4. One of JibJab's favourite projects last year was for Sony UK's Can't Tell The Difference campaign. Featuring dirty-dancing old people, show tunes in the ghetto and break-dancing cowboys, it certainly stands out from other media campaigns. See all these superb movies online at [w] www.canttellthedifference.com
3. The Geezers star in *It Bit My Ass!*, which you can see at [w] www.jibjab.com

JibJab Media

The creators of *Nasty Santa* are expanding. ***"We're using our experience to move into other markets – TV, toys, books,"*** says Gregg Spiridellis...

Most people's first experience of JibJab Media is via a link emailed from a friend. It might be to rapping US Presidents movie *The Founding Fathers*, or the Christmas series *Nasty Santa*. Once you've seen one of these *Flash* animations, you're hooked.

Gregg and Evan Spiridellis' fantastically irreverent sense of humour has attracted millions of visitors to their site. The mix of cartoon-like vectors and cut-out animation is unrivalled. You'd be forgiven for thinking they're just here to entertain you, but behind JibJab.com is a successful animation studio, which has produced games, movies and virals for clients such as Sony, Disney, Cartoon Network and Revlon.

"Our mission statement is to create great and funny entertainment properties that we can make a living from," says Gregg. When the brothers began in 1999, their aim was to provide licensed or original content to leading entertainment brands. "Truth is, since then we've learnt that it's hard to make money purely from the Web. Now we're using our experience to move into markets – television, toys, books."

Christmas all year round

JibJab's *Nasty Santa* series is a prime example of the success of this approach. What started as the story of a grumpy, rude Father Christmas is now a series of animated shorts, a talking toy favoured by Ozzy Osbourne, a children's book called *Are You Grumpy, Santa?* and, soon, a feature-length animation. "We've taken *Nasty Santa* to a number of film and television companies and there's been a lot of interest. We're hoping to go into production on it soon."

The company also created illustrations for a series of children's books by rap artists, including LL Cool J. "That's a cool story," says Gregg. "The producer had seen our work in a Kraft poster campaign, wanted that style but didn't know who we were. It turned out her 10-year-old son was a big fan of our site and he emailed us. We just said 'yeah, yeah, have your Mom call us'. And she did. We've learned never to ignore an email with a potential business opportunity!"

Recent advertising work for Sony UK also demonstrates the importance of JibJab's personal animation portfolio as a calling card as well as a great place to browse. "For the Sony Can't Tell The Difference campaign we did all the character designs and animations for the site," says Evan. "They had seen *The Founding Fathers* and had a clear idea of what they wanted – a contradiction of people and music styles. So we had an old couple dirty dancing and hippies who are like punks. It was a lot of fun."

Gregg and Evan are the only two full-time members of JibJab, with freelancers brought in for larger projects. As a general rule, Gregg provides the words and Evan provides the character designs and animations. "We pretty much do everything in *Flash*,"

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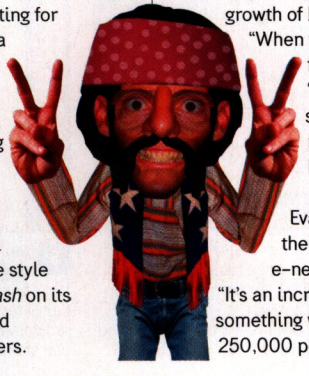
5. *The Founding Fathers*, which features four former US Presidents rapping, was one of the first interactive *Flash* animations to feature on JibJab's site and has screened on the History Channel. Five years later, it's still a visitor favourite.
6. This spoof campaign advert, *Ahnuld for Governor*, was animated in *Flash*. It features all of Arnie's classic lines and was so popular that it was screened at the Sundance Film Festival.

For further information about JibJab, you can contact **[e]** inquire@jibjab.com or visit their Web site at **[w]** www.jibjab.com

says Evan. "The design, the character illustrations, the movies. For us it's an animation tool." Now using *Flash MX 2004*, their work has evolved along with the software. "Macromedia's doing great stuff with the product. The fact that they've integrated video into the Flash Player makes it all the more exciting for content creators like us. But if we had a wish list, we'd like more sound-editing capabilities next time."

The forthcoming *Nasty Santa* film will also be created in *Flash*. According to Evan, "One of the great things about *Flash* is you can produce broadcast-quality, full-motion animation and it's still faster and cheaper than traditional methods." And he's not worried that the style will be too vectorised. "You can use *Flash* on its own or combine it with *After Effects* and *Photoshop*, adding new effects and filters. Just applying different techniques makes it more than just a *Flash* animation."



The pair is currently looking at incorporating more digital video into its portfolio, partly due to the format's growing popularity and partly due to the growth of broadband access among Web users. "When we started up, we were conscious of file size," says Evan. "It used to be like, 'oh man, it's 600k, no one's going to see it!' But now we're confident that most of the people who visit our site have high bandwidth."

Despite being the only full-timers, Evan and Gregg don't just bounce their ideas off each other. The JibJab e-newsletter has over 250,000 members. "It's an incredible marketing tool. If we make something we think is funny, we send it out to 250,000 people and see if they agree." ca-p

TUTORIAL: INTERACTIVE COLLAGE ANIMATION

On the next page, JibJab Media guides you through the process of creating an interactive collage-style *Flash* animation in the company's outrageous style...

In addition to being a great vector animation tool, *Flash* is outstanding for producing photo-collage animations. And with little extra effort, you can make your piece interactive.

So if you're tired of all those *Flash* cartoons on the Web that look the same, the following tutorial is designed to give you the skills you need to spice up your next animation project in the distinctive style of those found at **[w]** www.jibjab.com.

The tutorial assumes some basic animation experience (although you don't need to be a master draftsman) as well as a basic comfort level with both *Photoshop* and *Flash*. Once you've drawn, shot and animated your character, we'll show you how to add an interactive element that'll bring your character to life.

Part 1: The pre-production stage

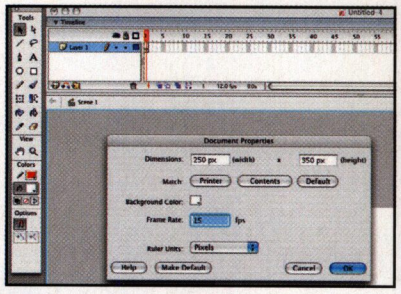
Creating interactive collage animation is simpler than it looks. A carefully thought-out pre-production stage will help you avoid trouble later on...

Files on disc

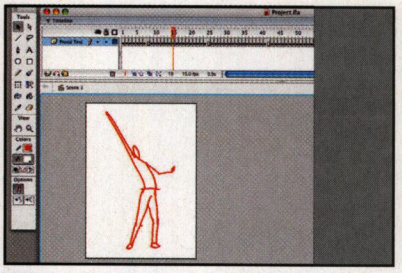
The finished JibJab .fla and.swf files created in this tutorial can be found on the cover CD in the Software\Tutorials\In The Mag\ JibJab folder.

PAL vs NTSC

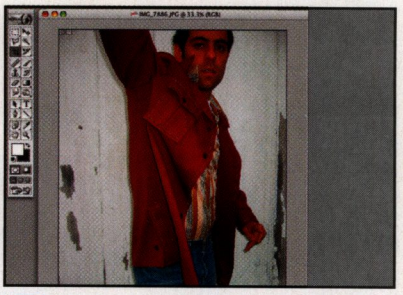
Remember that if you're wanting to convert your Web cartoon for broadcast at a later date, the framerate for PAL video in the UK is 25fps – as opposed to 30fps for NTSC (US) broadcast material.



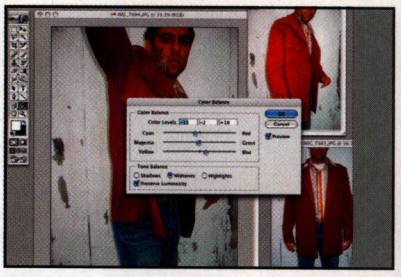
1 First, create a rough sketch animation so you know what collage elements you need. Open *Flash* and select an aspect ratio and framerate appropriate for your project. We suggest using 15fps because it doubles easily to 30fps if you want to convert your animation to NTSC broadcast later.



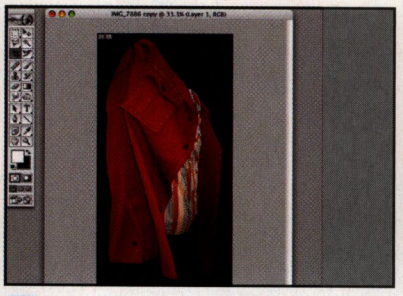
2 Create a guide layer called Pencil Test. On this layer, draw rough sketches of what needs to be animated. Make sure the drawing on your last frame flows nicely into the drawing on your first frame when looped. We always do this step so we know what photographic images are needed. Save your file as Project.fla.



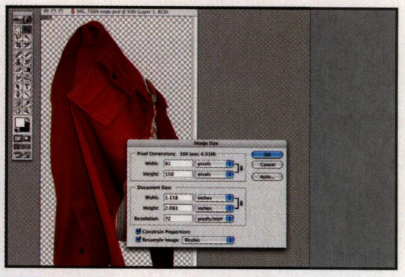
3 Review your pencil tests and make a list of the various body positions in which you need to shoot your model. When you're ready to do your photoshoot, make sure that you have even light without shadows. We recommend using a digital camera for all Web-based projects.



4 Transfer the images from your digital camera into Adobe *Photoshop* (or your preferred digital imaging software) and colour correct them using the Colour Balance tool (Image>Adjustments> Colour Balance). Open as many images as possible on your desktop so you can ensure colour consistency throughout.



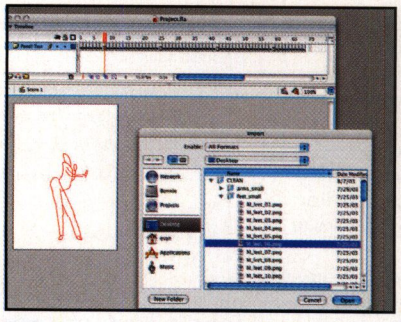
5 Prepare your images for *Flash* by cutting and pasting the photo onto a new layer and then deleting the bottom layer (this will enable transparency later when you import to *Flash*). Clean and crop each image so that you're left with only the sections you need (that is, a torso, arm or leg).



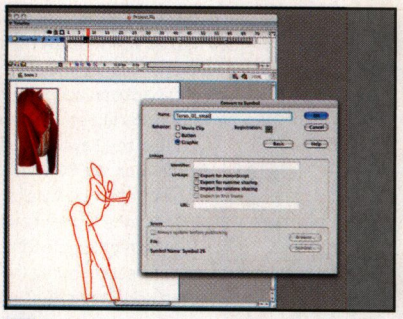
6 Save each of your images in a high-resolution format first (this way, if you want to go back later and create a higher quality broadcast animation, you won't have to re-cut your images). Save each image as a low-resolution PNG file (transparent). In this tutorial, no image is larger than 100-pixels high.

Part 2: Starting production

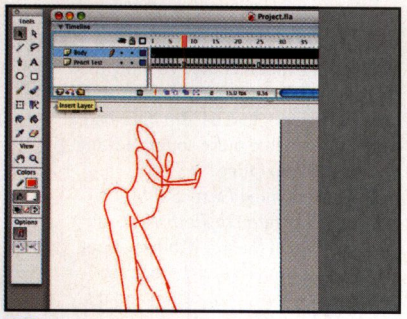
With all of your images shot, prepped and saved in a low-resolution and transparent format, you're ready to start animation production...



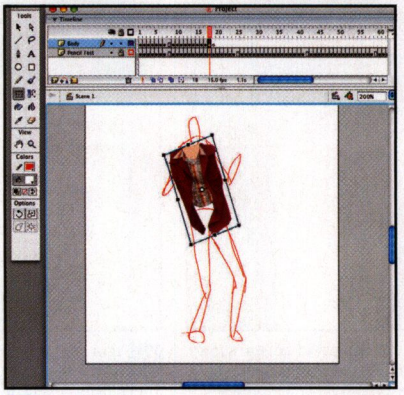
1 Close *Photoshop* and open Project.fla in *Flash*. Import all of your low-resolution PNG files. Here's a tip... if you name your images sequentially (for example, pants_01.png, pants_02.png, and so on), *Flash* will recognise the sequence and offer to import them all at once.



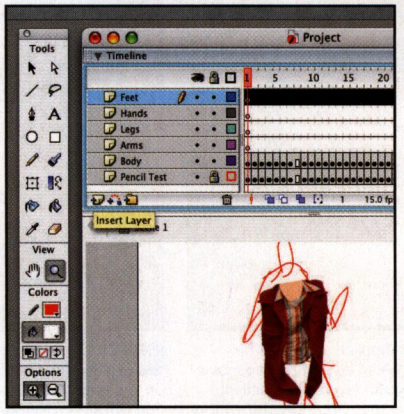
2 Create a symbol for each image. It's best to call your symbols the same thing as their underlying image assets. It's also important to keep your library organised. That way, if you have to revisit your file in a year or two, it'll be easier to find the assets you're looking for.



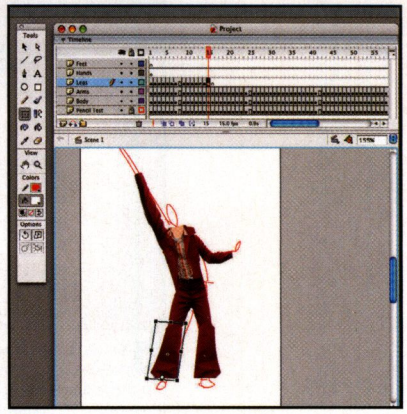
3 You're now ready to start animating. Create a new layer, named Body, on top of the pencil test (which is on the bottom layer). You'll use the pencil test as a guide to make the animation process simpler and give you a sense of how big or small you should scale your images.



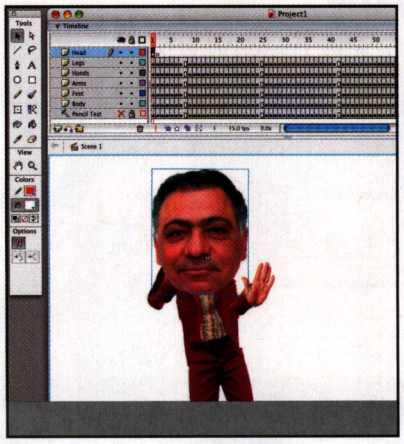
4 Frame by frame, pull in the photo symbols and overlay them on your pencil tests. When you've finished putting all of the body symbols in, you can hit the Return key to test the motion and make sure it looks smooth. Click the eye icon to hide the guide layer so you can see how the final product will look.



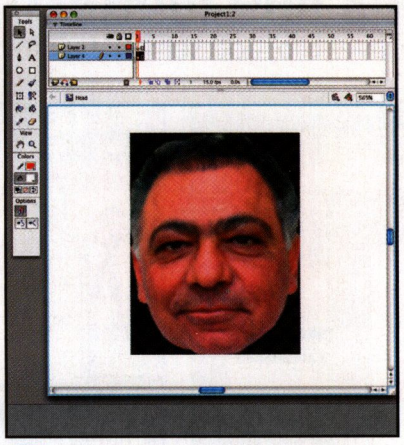
5 Create four new layers, for the arms, legs, hands and feet. Repeat the process in the previous step for each new layer, dragging in the appropriate symbols and overlaying them on the pencil test. Remember that your pencil test is just a guide.



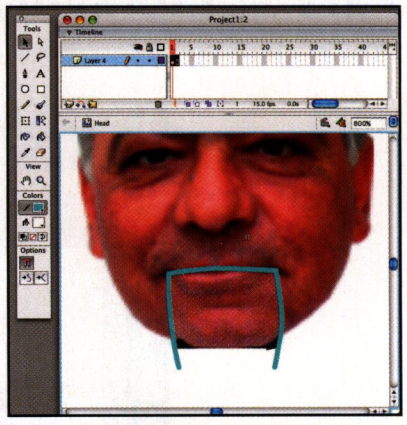
6 Congratulations! You've animated the body. Click the eye icon on the guide layer to get rid of your pencil test and hit Return. Hopefully, you're now looking at a well-animated, headless, dancing body. If necessary, go back and re-scale the body parts to create the desired effect.



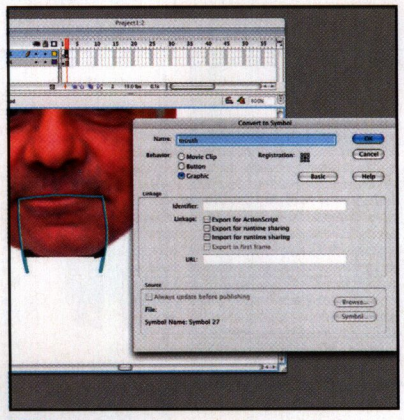
7 You're now ready to add the head to your dancing body. Create a new layer on top of all the others and name it Head. Import the head photograph and convert it to a movie clip symbol named Head.



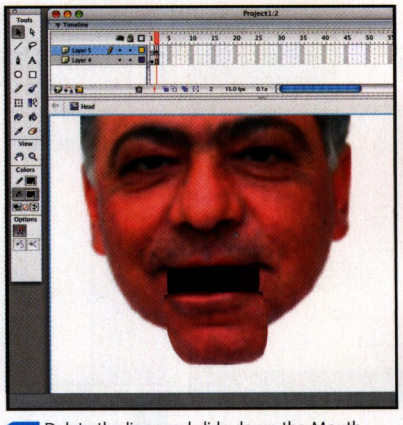
8 Now you're going to edit the Head symbol to create a chop-jaw effect to make your character talk. Make the Head movie clip two keyframes. Click to select the head.png file then go to Modify>Break Apart.



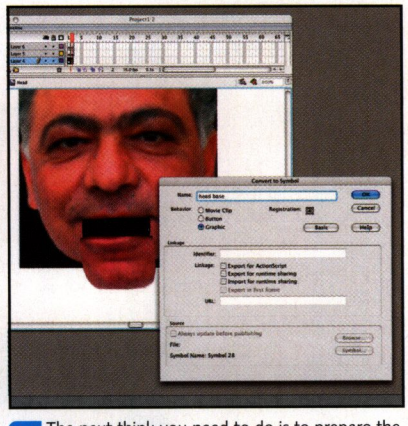
9 Create a jaw by using the Line tool to draw three lines (top, left and right) over the bottom part of the mouth. It's important to make sure there are no gaps and that all three lines are touching. This should be drawn directly onto the 'broken apart' head graphic.



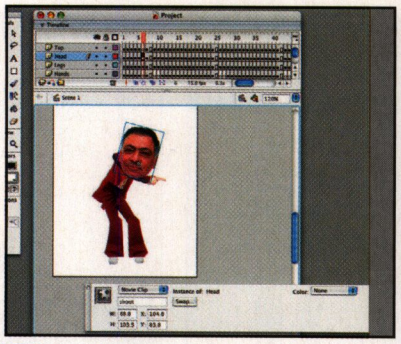
10 Create a new layer then select the newly drawn mouth section. Copy and paste the jaw into frame 2 of this new layer then convert this piece to a new symbol called Mouth. This is what you'll use to animate the mouth for lip-syncing purposes later on.



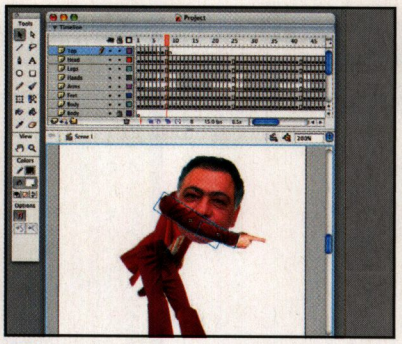
11 Delete the lines and slide down the Mouth symbol until you have the desired open-mouth position. Paint in a dark grey box to create the open-mouth effect (so you don't see the closed mouth behind it). You can use a black box, but you may find dark grey feels more natural.



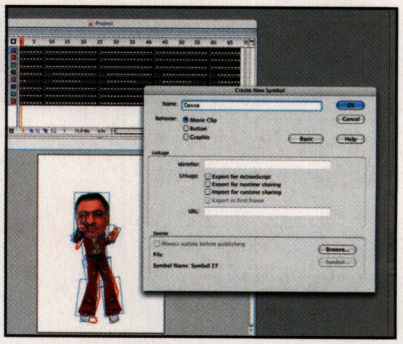
12 The next think you need to do is to prepare the Head symbol to receive Talk Actions (which you'll create later on). Convert the 'broken apart' head image into a graphic symbol called Head Base. Add a new layer to the symbol and put a Stop Action in each of the two keyframes.



13 Return to the main timeline and drag the movie clip into the Head layer. Give the movie clip the instance name Shout (so you can activate the mouth later on in the tutorial). Copy the symbol into each keyframe on the layer and animate. When you're done, click the Eye symbol and test the motion to make sure it looks smooth.



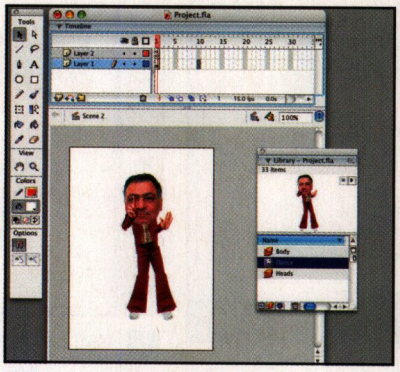
14 Adjust your layers. You may find an arm shows up behind the head when it's supposed to be on top. Add a new layer on top of all the others. Call it Top. Any symbols that should come to the foreground should be cut and 'Pasted In Place' from their original layer onto the Top layer. In this case, we want the arm to cross over in front of the head.



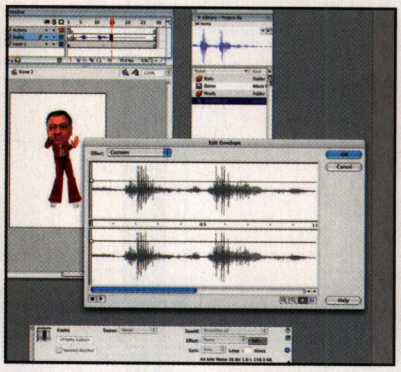
15 Your character animation is now complete, which means you need to prep it for interactivity. Select all keyframes in all layers and select Edit>Copy Frames. Create a new movie clip symbol called Dance and paste the keyframes into this symbol. All of your work to this point is now nice and clean in one symbol.

Part 3: Lip-syncing and interactivity

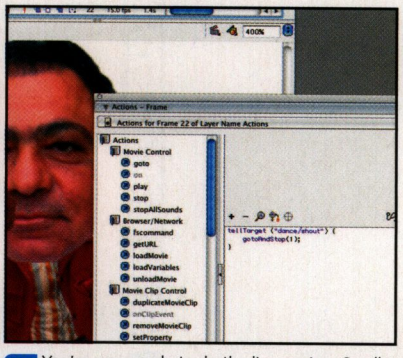
Now it's time to import a voice-over clip, add some interactivity and lip-sync your character...



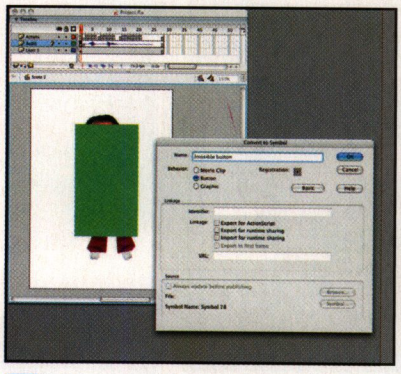
1 Create a new scene (so you're using a nice, clean slate), drag the Dance symbol onto your stage and give it the instance name Dance. Now add a second layer, called Actions, and put a Stop Action in frame 3 (this extra space will be used later when you import your music track).



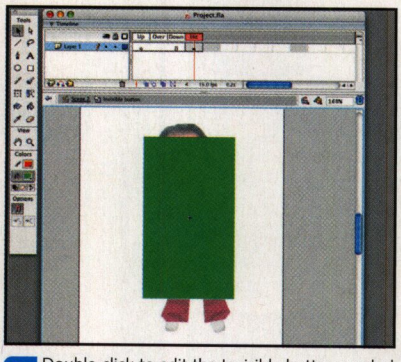
2 Create a new layer, called Audio. Then import the voice-over audio clip that you want your character to shout out. Place the voice-over audio in frame 4 of the top layer. Make sure the audio clip is designated as a stream sound and adjust the volume levels so they aren't maxed out.



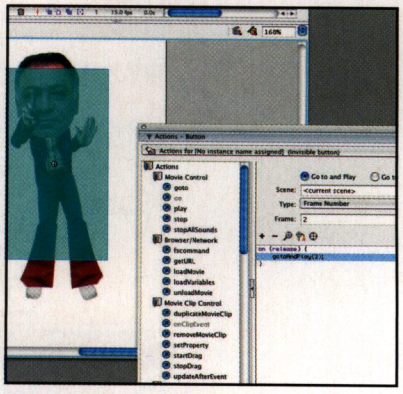
3 You're now ready to do the lip-syncing. Scroll through the audio. In the Actions layer, in the keyframes where the mouth should be open, place the ActionScript: **tellTarget ("dance/shout") gotoAndStop frame 2**. In the keyframes where the mouth should be closed, place the ActionScript: **tellTarget ("dance/shout") gotoAndStop frame 1**.



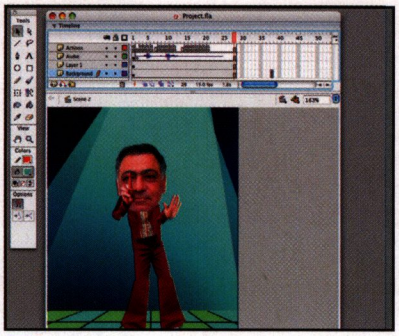
4 Now you need to create an invisible button to trigger the interactivity. In the first keyframe of the Audio layer, draw a solid square over the character. This designates the space the user can click to trigger the voice-over. Convert the box to a button symbol and call it Invisible Button.



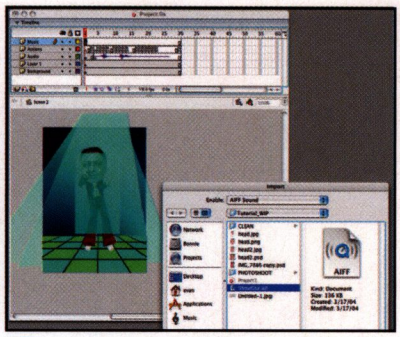
5 Double-click to edit the Invisible button symbol and drag the box to the last keyframe. Now the button has no visible graphic in the Up, Over or Down position, only an active Hit area. Return to the main timeline and you'll see that the button is transparent blue, indicating that it will be invisible in the final output.



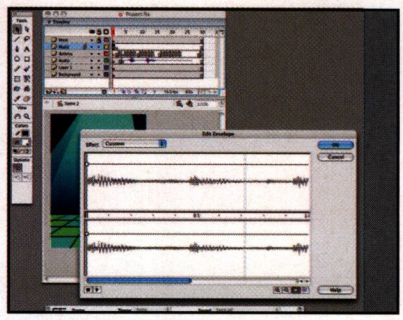
6 Select the Invisible button and open the ActionScript window. Add the Action: **on release gotoAndPlay frame 4**. This will send the play head to the voice-over clip when the user clicks the character.



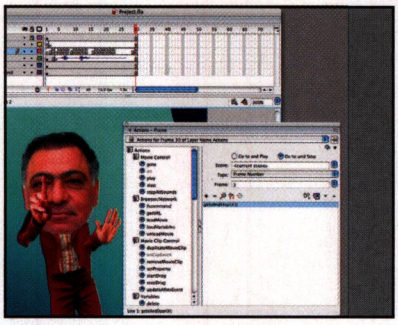
7 Now that your character is done, all you need to do is give him a spiffy environment in which to do his thing! Create a new layer, called Background, and drag it to the bottom layer. Pull in any background images you want in order to give your project the right feel.



8 You can't dance without music. Create a new layer called Music. Import the .aif or .wav file and drag it to frame 1. Keep in mind that the track should be a seamless loop so that it can play over and over again without the user noticing a break in the sound.

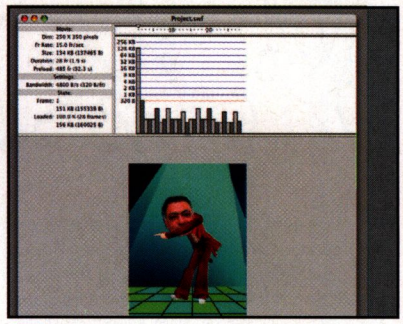


9 Adjust the volume levels on your music loop and make it an Event sound that loops 100 times. In the second frame, insert a blank keyframe to ensure that the music loop only gets triggered once. A bug in *Flash* can sometimes cause multiple loops to start playing if you don't create this extra keyframe.



10 Go to the Actions layer and, in the last keyframe, insert an Action that says: **gotoAndStop frame 3**. That makes your animation an endless loop that won't pass over the music track ever again. (The extra blank space between keyframe 1 and keyframe 3 is just padding to make sure the music doesn't get triggered again.)

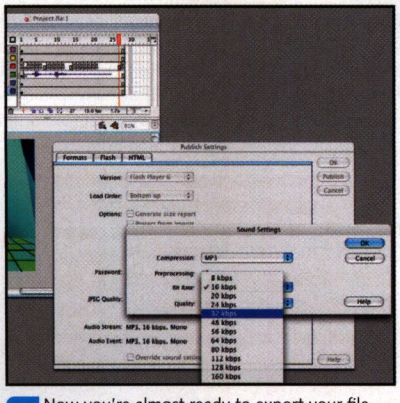
11 If everything looks good, delete Scene 1 that was used to create your pencil test and character animation. Don't worry, your original pencil test will be saved in the guide layer in the Dance movie clip. Once you've deleted Scene 1, hit Return and test your movie.



12 Use the Bandwidth Profiler to assess how big your file is. This tool shows you the total size of your movie as well as a frame-by-frame analysis. Decide if your file needs to be smaller (and adjust accordingly) or, if you have bandwidth to spare, increase your image quality or go a little bigger and get better quality.

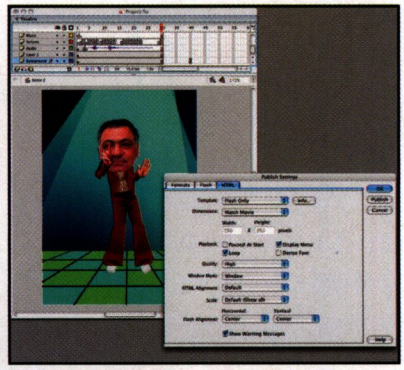
Part 4: The post-production process

Your interactive collage animation is looking good and you're ready to put it on the Internet. Here are a few tricks to optimise your file size and publish your work...



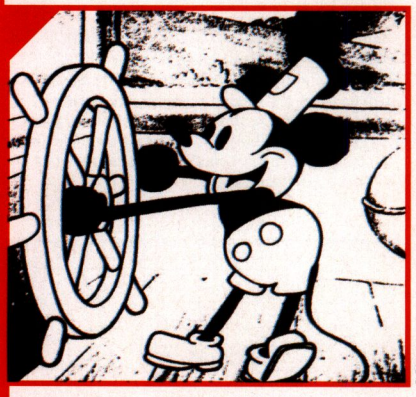
1 Now you're almost ready to export your file. Go to the File>Publish Settings and click the Flash tab. Switch your Event and Stream sounds to the desired quality. For the Web, you usually want to use a bit rate of 24 to 32kbps and MP3 compression. Set your quality to Medium or Best.

2 Adjust the image quality in the Library on key items. *Flash* defaults to 50 per cent jpeg compression. For key images such as the head you may want to increase image quality. Keep in mind that increasing the quality increases your file size.



3 Go to File>Publish Settings and select swf and html. Then go to File>Publish and *Flash* will export the files that you'll need to put on your Web server. Send your friends a link so they all know that you're now an interactive collage animation guru. Finally, see the finished files Project.fla and Project.swf on your cover CD. ca-p

A SELECT HISTORY OF


© Disney

1928 — DISNEY'S STEAMBOAT WILLIE

Walt Disney makes his first big impression on the animation world with *Steamboat Willie*, the first animated cartoon with sound. The cartoon introduced Mickey Mouse to the masses for the first time (although Mickey had already featured in a 1928 production, *Plane Crazy*).

1937 — SNOW WHITE AND THE SEVEN DWARFS

Disney breaks new ground again, releasing the first in a series of full-length animated movies. The first is *Snow White and the Seven Dwarfs*, followed in 1940 by *Pinocchio* and *Fantasia*. *Dumbo* is released in 1941, and *Bambi* in 1942.

© Disney

1968 — 2001: A SPACE ODYSSEY, YELLOW SUBMARINE

Kubrik's seminal work, *2001: A Space Odyssey* hits the big screen and Douglas Trumbull's stop-motion effects take centre stage. The animated Beatles hit, *Yellow Submarine*, also airs in cinemas.

1978 — LORD OF THE RINGS

Long before Peter Jackson's version came Ralph Bakshi's animated adaptation of Tolkien's classic novel. The film uses rotoscoped live action footage in order to save cash, a technique patented by Max Fleischer in 1917.

1982 — SILICON GRAPHICS, WAVEFRONT, ALIAS/1

The first SGI workstation is made available. The IRIS 1000 is instrumental in bringing computer animation tools to a new generation of artists. *Alias/1* and *Wavefront* are also released.

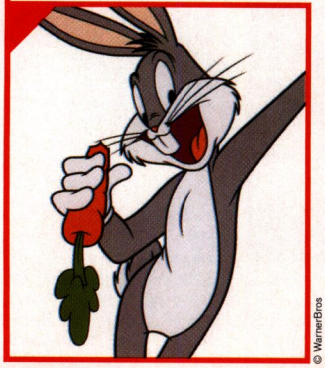
1928 1933 1936 1937 1940 1955 1968 1970 1978 1982 1984

1933 — KING KONG

Stop-motion animation becomes a reality in the movies, with *King Kong*. Willis O'Brien develops some groundbreaking stop-motion techniques, bringing an oversized monkey to the streets of New York.

1936 — TEX AVERY DEBUTS

The stammering Porky Pig hits the screen as legendary director Frederick Bean 'Tex' Avery releases his first Warner Bros studio cartoon — *Gold Diggers of '49*. Avery plays a major part in the development of characters such as Bugs Bunny and Daffy Duck.

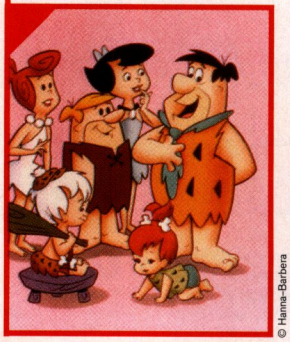

© WarnerBros

1940 — PUSS GETS THE BOOT

Two resident MGM animators, Will Hanna and Joe Barbera, pen an Oscar-nominated cartoon entitled *Puss Gets the Boot*, and then go on to create a series called *Tom & Jerry*. The cartoon goes on to become one of the most famous of all time.

1955 — HANNA-BARBERA FORMED

Hanna-Barbera is formed when MGM closes its animation studio in 1955. It goes on to produce some of the world's best-known series including *The Flintstones*, *Top Cat*, *Yogi Bear*, *Huckleberry Hound* and *The Jetsons*.


© Hanna-Barbera

1970 — HANNA-BARBERA DOMINATION

During the seventies, Hanna-Barbera dominates the 'animated cartoon for TV' industry, developing more variations on its character-based comedies. Having first hit our screens in 1969, *Scooby Doo* becomes a classic that will run for the next 35 years (and counting).

© Hanna-Barbera

1984 — ROBOTS IN DISGUISE

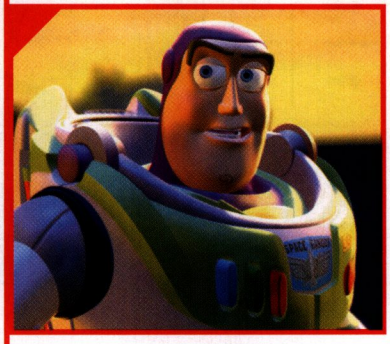
The shift towards more hip animated cartoons begins with *Transformers*, *G.I. Joe* and *Care Bears* airing in America for the first time.

ANIMATION: 1928–2004

1986 – PIXAR FORMED
Steve Jobs purchases ILM's CG division to form Pixar – a company that will dominate the future of CG feature films.

1993 – JURASSIC PARK
Steven Spielberg's *Jurassic Park* hits the screens. Stop-motion is rejected in favour of *Softimage|3D* and *Alias PowerAnimator*. ILM's work on the feature receives an Academy Award.

1995 – TOY STORY
The first full-length computer animated movie is released – *Toy Story* from Disney Pixar. Highly successful at the box office, the film signals the beginning of a raft of brilliantly written and wonderfully-produced CG-generated movies that will bring worldwide acclaim to Steve Jobs' Pixar.



© Disney/Pixar

2002 – LORD OF THE RINGS: THE TWO TOWERS
Peter Jackson's second instalment in the *LOTR* trilogy introduces Gollum, a masterpiece in digital character creation. Weta, the New Zealand-based facility, completes modelling and visual effects for the movie. It is, like the first movie, a complete success.

2003 – FINDING NEMO
Disney Pixar's long-awaited follow-up to *Monsters Inc.* hits the screen and, like the company's previous offerings, features state-of-the-art CG and some unbelievable fluid effects.

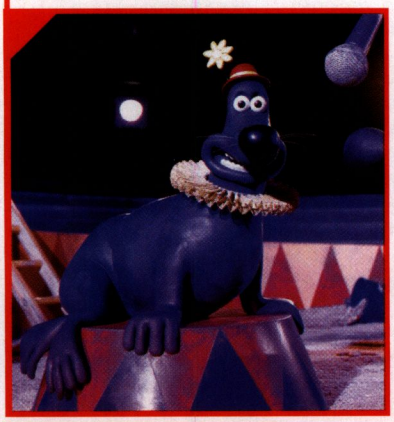
2004 – THE INCREDIBLES
The last film to be released under the Disney Pixar partnership airs later this year. See some brand new stills from the feature in our showcase section on page 13.

© Disney/Pixar

1986 1993 1995 2002 2003 2004

1990 1999 2000 2001

1990 – CREATURE COMFORTS
Creature Comforts from Aardman Animations earns Nick Park (of *Wallace and Gromit* fame) his first Academy Award. *A Grand Day Out* was released a year earlier and just three years later *The Wrong Trousers* gets Park his second Oscar.



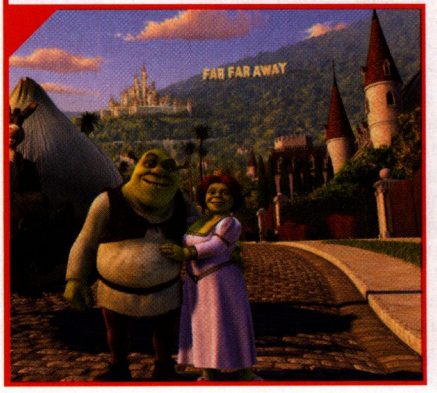
© Aardman Animations Ltd 2003

1999 – JAR JAR BINKS, TOY STORY 2
ILM creates a completely CG-generated character, Jar Jar Binks, for George Lucas' *Star Wars Episode One: The Phantom Menace*. Meanwhile Pixar continues its winning form, and releases the sequel to *Toy Story*.

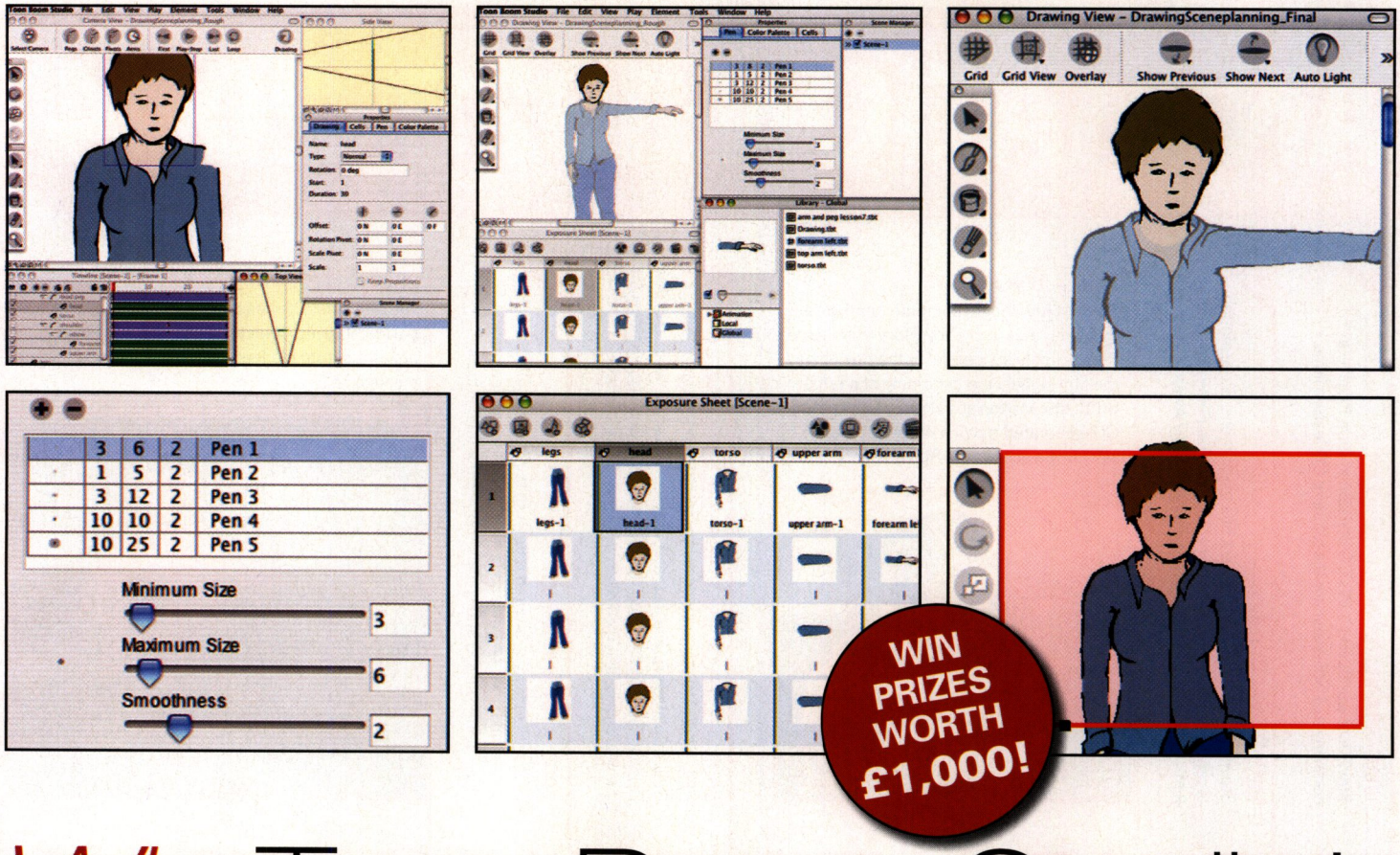
2000 – CHICKEN RUN
Aardman's collaboration with Dreamworks begins, with the Peter Lord directed *Chicken Run*. Starring the voice of Mel Gibson, the film receives widespread box office success.

2001 – FINAL FANTASY, MONSTERS INC.
Square makes extensive use of motion capture to create Final Fantasy, one of the most realistic CG animated movies ever produced. Meanwhile Disney Pixar releases *Monsters Inc.*

JUNE 2001 – SHREK
PDI/Dreamworks releases its second full-length CG animated feature, *Shrek*. The lovable ogre is ten times more ambitious than the studio's previous offering, *Antz*, with advanced skin, fluid and fire modelling techniques and characters driven by a full skeleton, muscle and fat-based animation system.



JANUARY 2004 – PIXAR ENDS TALKS WITH DISNEY
Possibly the most successful pairing in Hollywood history comes to an end as Pixar and Disney disband. "We've had a great run – one of the most successful in Hollywood history – and it's a shame that Disney won't be participating in Pixar's future successes," said Pixar CEO Steve Jobs.



Win Toon Boom Studio!

Five copies of the awesome animation app up for grabs, worth £200 each!

This month, it seemed fitting to give away one of the best animation tools in the business, so we teamed up with Toon Boom Technologies to bring you the chance of walking away with *Toon Boom Studio* for absolutely nothing.

This app, on version 2.5 for Mac and 2 for PC, usually retails at just over £200, and features a toolset worthy of any professional animator. For one, the app operates in a 2.5D environment, meaning you can plan your 2D animations in 3D. Confused, well you shouldn't be, because this multi-plane Sceneplanning mode is extremely easy to use. You can position 2D elements on different planes, making it easy to create the illusion of distance.

There are also some great drawing tools, enabling you to easily knock up fantastic characters. These include Auto Gap Closing tools, the ability to paint with bitmap textures and more. All the pro animation features are here, including onion skinning (the ability to see previous and subsequent frames as well as your current drawing) and a digital light table. Add to this some truly revolutionary automatic lip-syncing tools, an industry-standard dope/exposure sheet and you have all the tools you need to create fantastic animations for both Web and TV distribution.

Simply answer the question that follows, drop us a line at the usual address and then turn to page 26 for our exclusive *Toon Boom Studio* tutorial...

The question

What's the animation term for the ability to see previous and subsequent frames at the same time as the current one?

To enter

Try the easy way, via our Website. Log onto **[w]** www.computerarts.co uk/competition. Click on the *Toon Boom Studio* competition to access the page. To enter, click the link at the bottom of the page, fill in the form, including your answer and contact details. If you don't have Web access, you can still enter by sending us your answer on a postcard to: *Toon Boom* competition, Computer Arts Projects, 30 Monmouth Street, Bath, BA1 2BW. Please include your address and a telephone number so we can contact you if you win.

The rules

The closing date for entries is 3 June 2004. Employees of Toon Boom Technologies and Future Publishing, their agents and families are not permitted to enter. Multiple entries are not accepted. The editor's decision is final and there are no cash alternatives. No other correspondence will be entered into. If you are entering by post and do not wish any of the companies involved in this competition to contact you with further offers, please indicate this on your entry. We will not pass your details on to third parties.

For more information *Toon Boom Studio* visit **[w]** www.toonboomstudio.com

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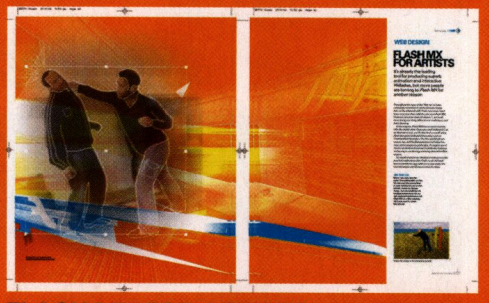
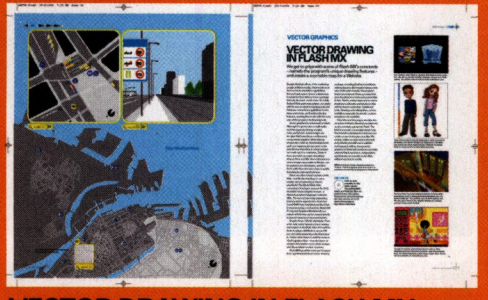


FLASH MX FOR ARTISTS

It's already the leading tool for producing superb animation and interactive Websites, but more people are turning to *Flash MX* for another reason

WEB NAVIGATION IN FLASH MX

In the second of our three-part expert series on *Flash MX*, we explore fundamental features of the timeline as we create an interactive comic

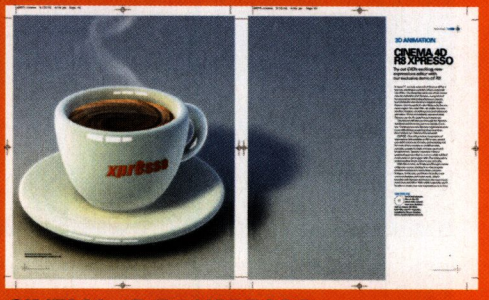


VECTOR DRAWING IN FLASH MX

Get to grips with some of *Flash MX*'s core tools, especially the program's unique drawing features, and create a zoomable map for a Website

SCRIPTING GRAPHICS IN FLASH

Use *Flash MX*'s powerful drawing methods to make your creative work more dynamic and interactive than ever before



CINEMA 4D R8 XPRESSO

Try out *Cinema 4D*'s exciting new expressions editor with R8 of Maxon's powerful 3D modelling and animation software

SO, WHAT DO I NEED?

All tutorials are in PDF format. You will need Adobe *Acrobat* to open them, which you can download free from ww.adobe.co.uk. Once you have paid for your tutorial, you will have 24 hours to download the file. All supporting files for the tutorial can be downloaded via a link embedded in the PDF

DESIGN CHAPEL

Swedish illustrator Robert Lindström takes us through the making of his world-famous 'nun' desktop wallpaper in *Photoshop* and *Flash*

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WIN
one of five copies of Toon Boom Studio – turn to page 24!

Animating in Toon Boom Studio

Lights, kilobytes, and… action! Produce and direct Web cartoons with *Toon Boom Studio*: a complete digital solution for creating animations for the Internet and beyond…

Toon Boom Studio is a simple yet powerful application that combines 2D and 3D technology into what is essentially a glorified digital light table and animation stand. Primarily a vector-based solution, the program can also be used to mix media and create a wide variety of 2D animation styles and products.

Ideal for small studios and animation 'auteurs', *Toon Boom Studio* provides all the tools needed to produce animation from concept to output. It also enables you to export at different resolutions in both .swf and QuickTime formats, meaning that you can use the software to create content for both the Web and video.

This tutorial explores the features and capabilities of *Toon Boom* as a Web animation package. Using examples drawn from a Web cartoon made entirely with the application, you'll see how the software suits your cartoon animation purposes at every stage of the production process, from storyboarding to lip-syncing, to animating and exporting with effects.

All the components needed to complete the following tutorials can be found on the cover CD in the Software\Tutorials\In The Mag\Toon Boom folder.

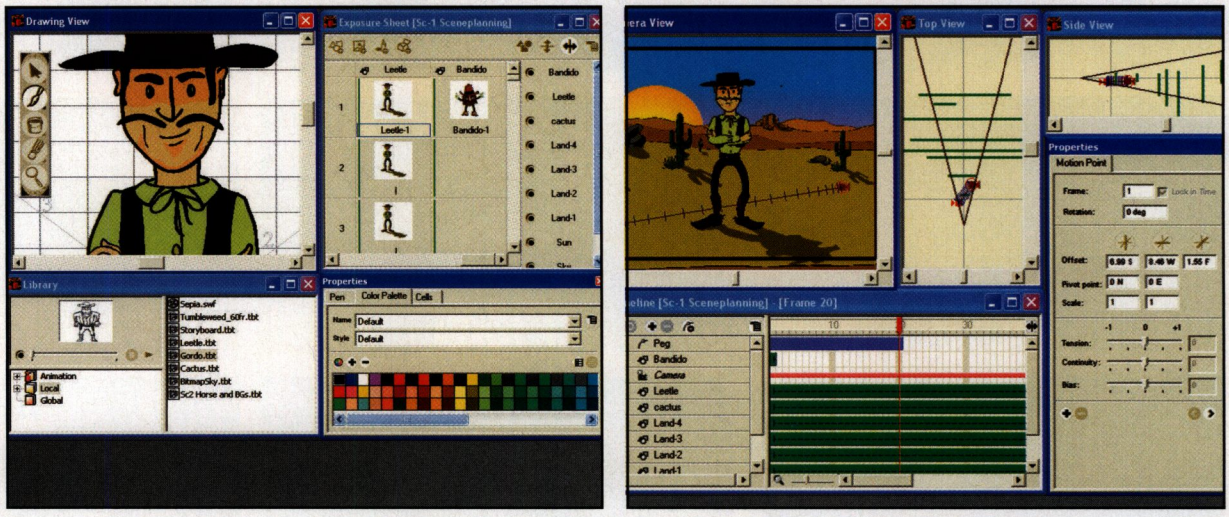
Expertise provided by Michele Garneau. Michelle has had a long career as software instructor, technical writer, marketing assistant and product specialist for Toon Boom Technologies Inc.

Part 1: A tour of the interface

Before you start drawing your cartoon in *Toon Boom Studio*, familiarise yourself with the Drawing Mode and Sceneplanning Mode windows...

Source files and software

Note that the source files provided on the cover CD are only compatible with the PC version of *Toon Boom Studio*. Mac users can download alternative source files from [w] www.toonboomstudio.com. A free 30-day trial version of *Toon Boom Studio Express* for PC or Mac can be found on this month's cover CD.



Toon Boom Studio is made up of two work modes: a Drawing Mode and a Sceneplanning Mode. You can switch between these two modes at any time using the Toggle Mode icons. In Drawing Mode you create or import data for your scene, whereas in Sceneplanning Mode you lay out shots, and choreograph pans, transformations and camera moves.

Drawing Mode

In the Drawing Mode window (pictured above-left) you use the Drawing View like a virtual light table to draw and paint vector graphics. You can choose and edit your pen sizes and palette colours in the Properties window. *Toon Boom Studio* automatically saves your drawings to the cells of the Exposure Sheet. The Exposure Sheet, as you can see above, is your scene's database and play list, which keeps track of all the files in a project and enables you to set the frame-by-frame play order of the images and sounds.

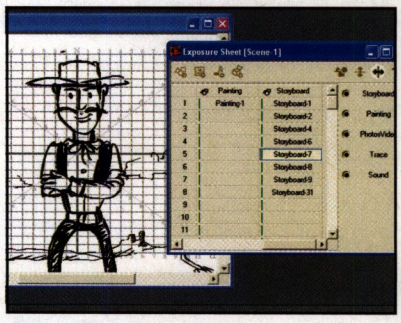
Sceneplanning Mode

In Sceneplanning Mode you lay out and view your scene in the Camera, Top and Side View windows. The Camera View window can be seen above-right. Within this window, you can select and edit scene elements in any of these views to place them at different depths or change their angle or scale. The Timeline window is a continuation of the Exposure Sheet window. The Timeline provides you with control over timing and effects in your scene. Use this to mark the in and out points of each scene layer and to link elements or the Camera to Pegs. Pegs are 'multi-dimensional tweening' devices that enable you to apply frame-by-frame changes on an element's – or the camera's – position, angle or size.

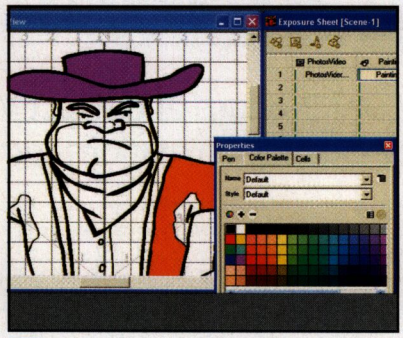
Now that you've familiarised yourself with the work modes, you can start drawing your characters.

Part 2: Inking and painting

Take a look at some of the vector drawing and painting tools that *Toon Boom Studio* has to offer...



1 You can draw your storyboard panels and character designs directly into *Toon Boom Studio*. Open the DrawingMode project from the cover CD. Click through the cells of the Storyboard column. Select a blank cell and try doodling in the Drawing View using the Brush tool.

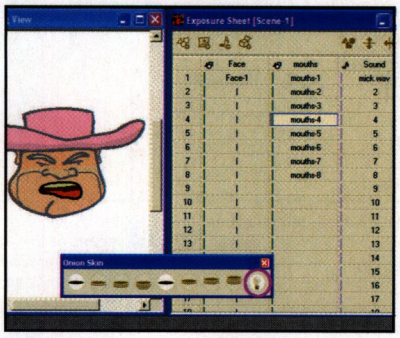


2 Paint drawings with solid or gradient colours. Select the cell Painting-1. Use the Paint Bucket to pick colours and paint the drawing. *Toon Boom Studio's* Auto Gap function (Tools menu) invisibly closes zones with loose or broken lines as you paint.

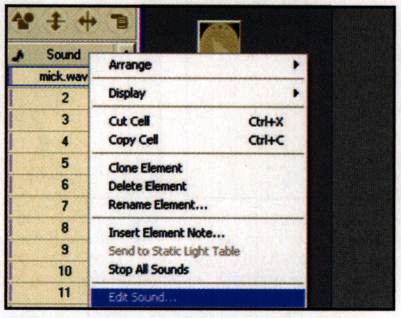
3 Now for some tracing and rotoscoping. Click the radio buttons to hide all columns except PhotosVideo and Trace. Turn on the Auto Light Table (light bulb icon) and select Trace-1. See how we matched the 2D characters to the bitmap. Select Trace-2 and try drawing or tracing something yourself to match the bitmap.

Part 3: Lip-syncing

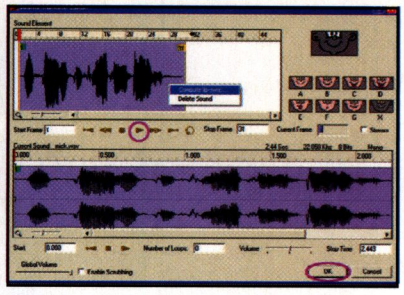
In this section, we show you how to get your character talking in time with your sound elements...



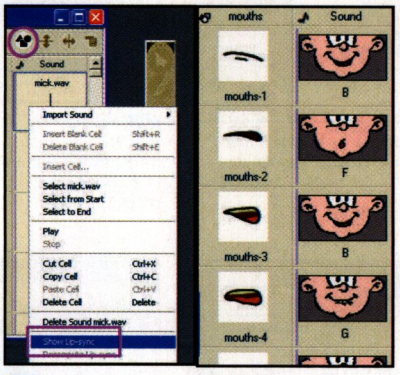
1 Open the Lipsync project in Drawing Mode. Turn on the Auto Light Table to see all layers simultaneously in the Drawing View. The character's face and mouths (eight positions) are separate.



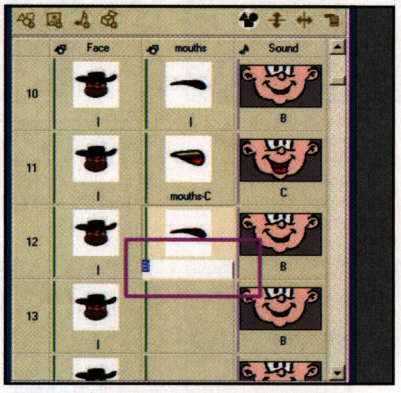
2 Use the Sound Editor to analyse the audio file and match the mouth movements to the sound file. Right-click the header of the Sound layer and choose Edit Sound from the contextual menu. The Sound Element Editor appears.



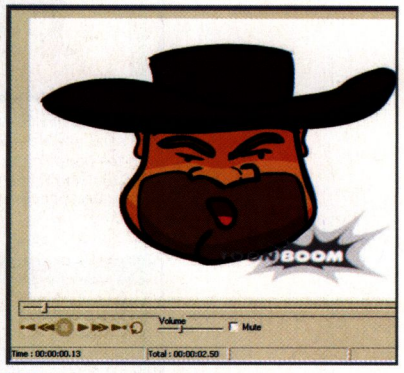
3 Right-click the waveform in the upper part of the window and choose Compute Lip-sync. The system reads the audio track and associates the phoneme symbols (in the upper-right corner) to the appropriate frame. Press the Play button to preview the automatic breakdown. Then click OK.



4 Switch on the Thumbnail view by toggling the first icon in the upper-right corner of the Exposure Sheet window. Right-click any cell within the Sound column and choose the Show Lip-sync command. The mouth position icons appear in each frame of the Sound column.



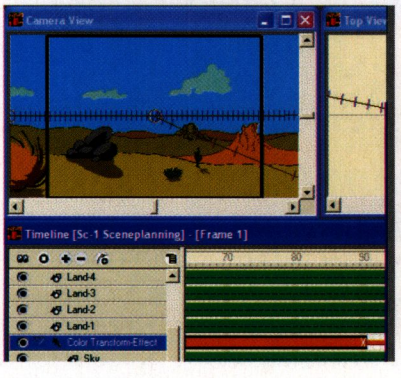
5 Double-click the cells in the Mouths column to edit their names. Refer to the letters of the mouth labels in the Sound column and type the same letter in each cell of the Mouths column. By pressing Enter, you can jump to the next cell.



6 Select Play>Drawing Mode>All. The system renders an internal preview playback. Watch the character speak in sync with the soundtrack. The program is capable of about 75 per cent accuracy at this stage, so there's always room for some fine-tuning.

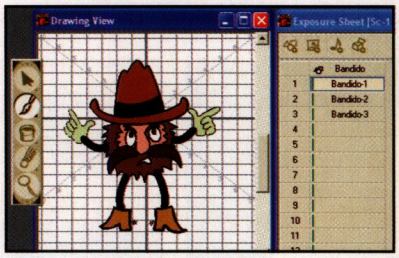
Transforming your colours

Open the WramblingWeed project on the CD to see how the Colour Transform Effect is used. The Sky and Clouds layers are linked to the Colour Transform Effect layer. Select this layer and slide the Playhead back and forth along the Timeline. Notice how the values shift on the Colour Transform tab in the Properties window. You can insert and remove new keys at any frame to control the timing of a Colour Transform Effect. Use the + and – buttons at the bottom of the Colour Transform tab. The new key inserts at whichever frame the Playhead is positioned.

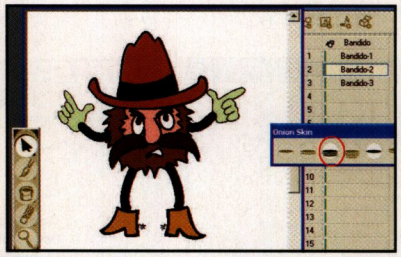


Part 4: Animating frame by frame and with pegs

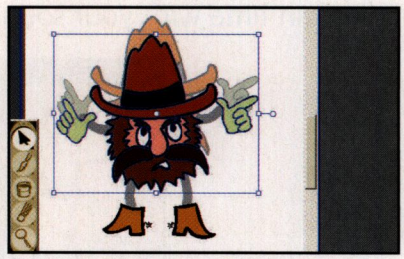
We show you how the 2D and 3D animation tools work together...



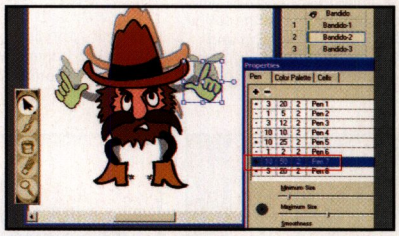
1 Open the HoppinMad project. Select the first cell in the Bandido column. Copy it and paste copies into the next two cells. You now have three identical copies, each with a distinctive number.



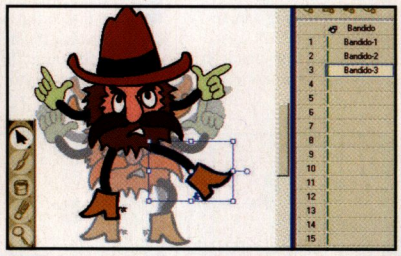
2 Select the second cell of the Bandido column. Activate the Previous Two Drawings level of the Onion Skin function. Toggle the Grid off with the [g] key. Zoom in on the drawing.



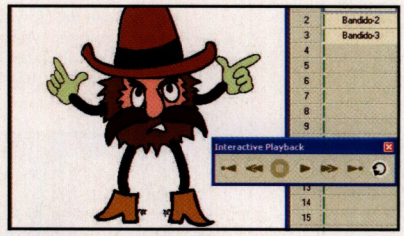
3 Use the Select tool to pick and delete the vectors of the arms and legs. Then draw a bounding box around all the remaining vectors except the boots and drag the selection downwards.



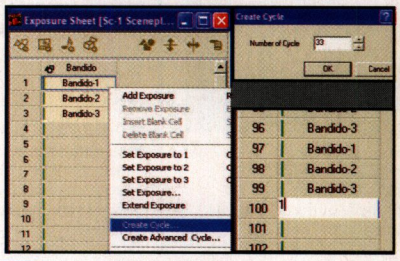
4 With the Select tool, select and rotate each hand upward. (Use the grabber that juts out from the bounding box to rotate.) Next, use the Brush tool and Pen 7 to draw new legs lines – putting a bend in the knees – and new arm lines.



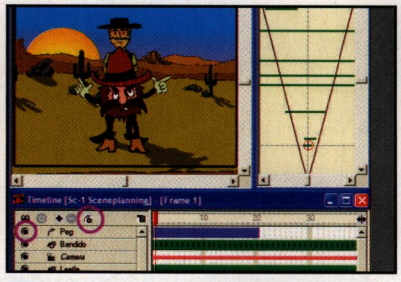
5 Select the cell Bandido-3. Select the entire drawing and reposition it higher up on the page. Select the vectors of the legs and boots, and rotate each leg outwards.



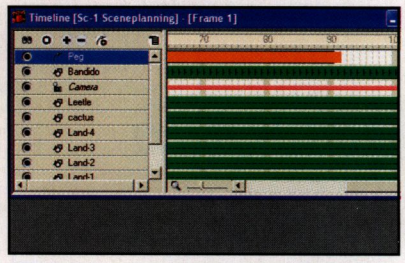
6 Watch a playback of the mini animation cycle you just created. Shift-select the three cells in the Bandido column. Turn the Interactive Playback loop option on and press the play symbol. The character should now hop frantically!



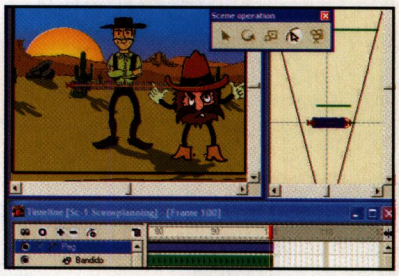
7 Shift-select all three cells. Right-click to open the contextual menu. Select Create Cycle. Type 33. Click OK. Scroll down to frame 100. Double-click the empty cell. Type 1, then press Enter. The jumping Bandido cycle repeats until frame 100.



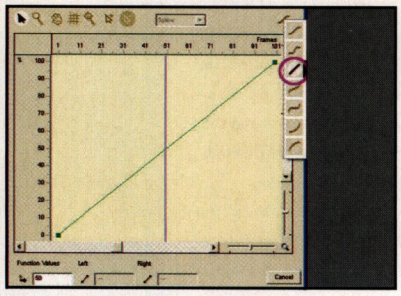
8 Switch to Sceneplanning Mode. Click the Add Peg icon in the top bar of the Timeline window. Click the radio button to the left of the Peg layer to make the peg visible in all the Sceneplanning views.



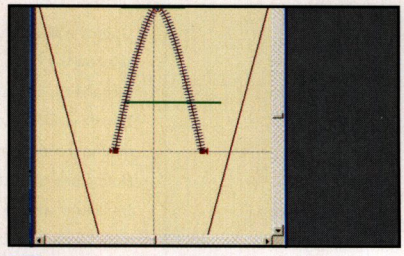
9 Extend the Peg to frame 100 by clicking and dragging the blue bar in the Timeline to the right. Link the Bandido layer to the Peg layer by dragging the Bandido layer by its label on top of the Peg layer label in the Timeline window.



10 Select the Peg in the Timeline. Drag the Playhead to frame 1. Use the Motion tool (fourth icon in the Scene operation toolbar) to click and drag the Bandido screen left. Move the Playhead to frame 100. Click and drag the character screen right. Now you can watch the results with the playback function.



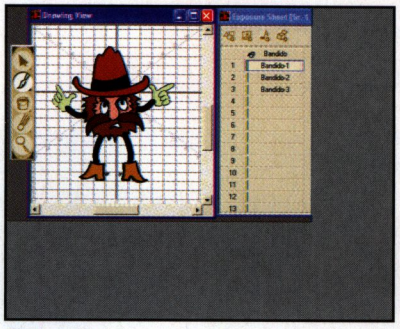
11 *Toon Boom Studio* applies 'eases' at both extremes of a Peg movement. Remove these by selecting the Peg in the Timeline and clicking the Velocity tab in the Properties window. Click Edit to open the Function Editor. Click the Reshape button and choose the Linear pre-set curve shape.



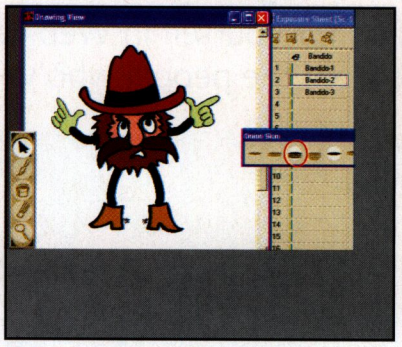
12 Zoom in to the Top View window. With the Motion tool, hold down the Shift key and click in the centre of the Peg path. A green control point appears. Drag the control point upwards (actually back). Then add more control points to the Peg and move them about to shape the Peg path into a circle. Run the interactive playback. The character should hop around the cowboy's legs.

Part 5: Camera moves

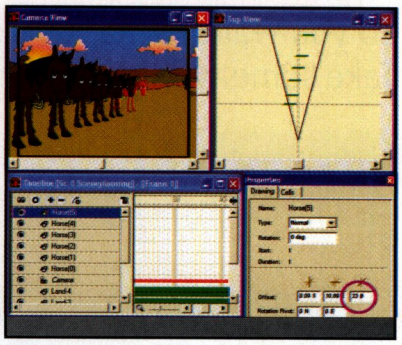
Find out how to clone elements, move the camera on a peg and then export the shot as a *Flash* movie...



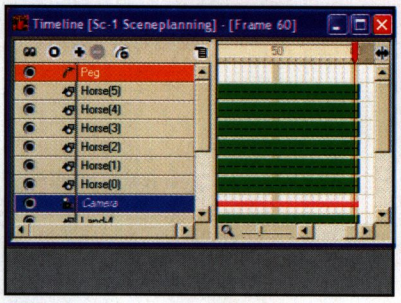
1 Load the project WheresMaHorse from the cover CD and switch to Sceneplanning Mode. Clone the Horse element by right-clicking the Horse label in the Timeline and selecting Clone Element from the contextual menu. Note that you won't see the clone initially because it's in the same position as the original.



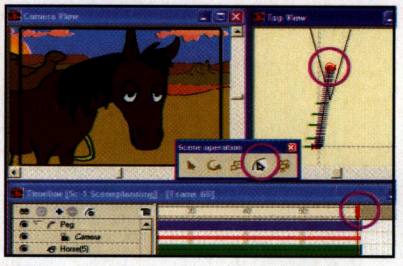
2 Select the Clone layer and edit its Front/Back Offset value. To do this, double-click in the third Offset value in the Properties window and type 3 B (using an uppercase B). Use the Select tool to move the new horse layer to the right of the original in the Camera View window.



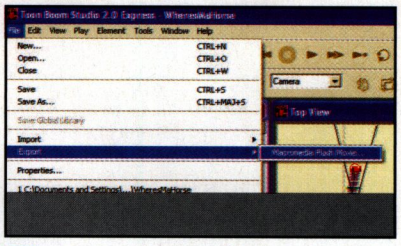
3 Create a line-up of clones. Repeat the Clone Element operation until you have five copies of the horse. Edit the F/B offset of each clone so that each one is set slightly deeper into the scene space. Adjust their position one by one with the Select tool in the Camera View.



4 Add a new Peg to the Timeline. Link the Camera to this Peg. Drag out the duration of the Peg (by the end of the blue bar) to Frame 60.



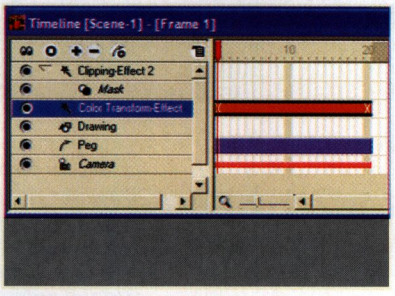
5 Move the Playhead to Frame 60. Select the Peg in the Timeline window. Using the Motion tool, drag the camera by the angled lines in the Top View window to 'truck in' (pardon the cinema speak...) close on the last horse of the line-up.



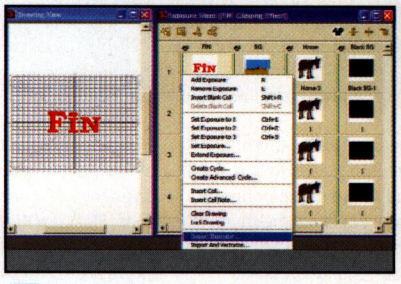
6 Export the shot as a *Flash* Movie. Select File>Export>Macromedia Flash Movie. Choose a file name and click the Save button. With *Toon Boom Studio Express* you can only export in .swf format. With the full version of the software you can also export in QuickTime.

Part 6: Special effects

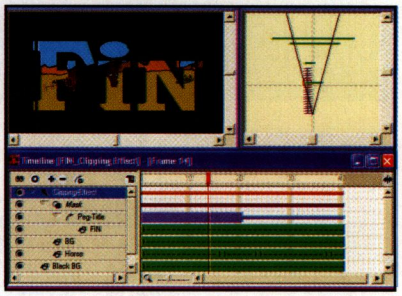
In this final section, we look at how to use the Colour Transform and Clipping Effects...



1 You can add visual effects to your scenes through the Timeline window. Left-click the Show Contextual Menu icon and choose New>Colour Transform or Clipping Effect. The effects appear as new layers in the Timeline. You link elements to these effects in the same way you link elements to Pegs.



2 Open the project named TheEnd. In Drawing Mode, you can see it has a layer containing text. The type is an Adobe *Illustrator* .ai file imported directly to a drawing type column using the Import Illustrator command in the contextual menu. Note that you must change text to Outlines in *Illustrator* so that *Toon Boom* can see the type as vector shapes.



3 In Sceneplanning Mode you see the Clipping Effect contains a Mask. You can put elements linked to Pegs in this Mask – the elements to be clipped by the Mask to the Clipping Effect layer. The Black BG layer is not included in the Clipping Effect group. Run the interactive playback to see the effect in motion. ca-p

Promote your cartoons

So you want to make a name for yourself in Web cartooning? Take some words of advice from the people who've done it...

Back in the late 1990s, there were a million places to see great, and not so great, online animations. *Flash* was fresh and exciting, and the folks who'd grown up watching *Wile E. Coyote, Thundercats* and *Ren and Stimpy* found they too could become animators. You didn't need hours and hours to learn cell animation; you only needed a little time and diligence to learn *Flash* and the rest was restricted only by your imagination.

Fast forward to the here and now. Many of the old Internet haunts are closed or dormant and it can be tough to get your work seen. But take heart because many of the folks who were heroes on *Wired's* Animation Express are still with us and have words of comfort and advice.

"I bought my first Apple Mac back in 1997 and was reading up on how to design a Website. I was especially fascinated with the ability to make things move on the Web with animated gifs," recalls Naoki Mitsuse, one of Animation Express' most regular and popular contributors. She continues: "Then, Spumco of *Ren and Stimpy* fame started showing a *Flash* animated series called something like *George the Liquor Program* so I ran out and bought myself a copy of *Flash*."

Naoki went on to design and animate some of the Web's most enduring underground serialised characters. *Wired's* animation site showcased the misadventures of Naoki's hero Sex Slave, a gimp who

yearns for freedom. This was followed by the equally addictive serial *Joe's Story*, a surreal heist flick for the Web.

First break

"My animation first got noticed when I showed it to a *Flash* mailing list I used to belong to, and then through word of mouth," Naoki reports. "The animation work has shown on *Wired* and its Japanese site; Shockwave.com and its Japanese site; Aimeemann.com; Diesel.com; and a number of both online and offline film festivals."

It's a similar story for Joe Corrao. "I guess my first online animations may have been some gif stuff I did back in 1995–1996, but the first *Flash* stuff was in 1997–1998 or so," Joe recalls. "*Wired* was the first good place to show. Lots of sites have come and gone... but I have been on Icebox, and Iwantmyflashtv too. I have been in a few online film festivals... The Stuttgart film festival (last year and maybe again this year) and also the ResFest a few years back. I did a series called 'CyberSlacker', which won the Flash Forward award for best animation back in 1999. I did 16 five- or six-minute-long episodes in all."

While the Web's changed a lot since *Wired's* Animation Express – sadly no longer updated – ruled the roost, Naoki and Joe's experiences are still valuable lessons for today's aspiring animators. Gaining publicity is essentially all about having an idea that a lot of people find compelling and are willing to take the time to watch. After that, it's a matter of setting up a Website featuring your work and promoting it. Like Naoki, you could join a *Flash* mailing list or community with others in your situation who may be willing to offer feedback and tips. Check out the likes of Flashkit at **[w]** www.flashkit.com, Ultrashock at **[w]** www.ultrashock or FlashMoves at **[w]** www.flashmoves.com for their site forum sections.

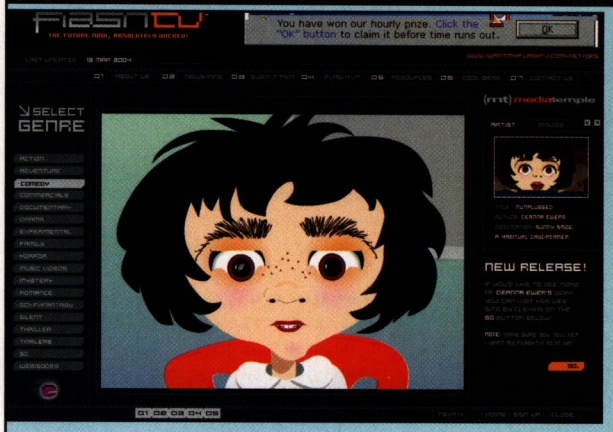
Flash your talents

"Definitely get yourself a site and *Flash* it up," advises Joe Corrao. "Make a *Flash* navigation and show animation work you've done. Iwantmyflashtv.com is a great site... lots of the good ones have closed up shop, but definitely try to find a popular site and consistently send them new work."

In terms of site promotion, the Holy Grail in the UK is B3ta at **[w]** www.b3ta.com. Every week, the site's Rob Manuel sends out an email full of things he's received that tickle his fancy. "I look at everything sent in," he reports. "No 'here's a 3D rendered thingy I did for an art show' please."

B3ta success stories include the now notorious Joel Veitch, the driving force behind *RatherGood* at **[w]** www.rathergood.com. Similarly, there's Jonti Picking, alias

Resources



I Want My Flash TV

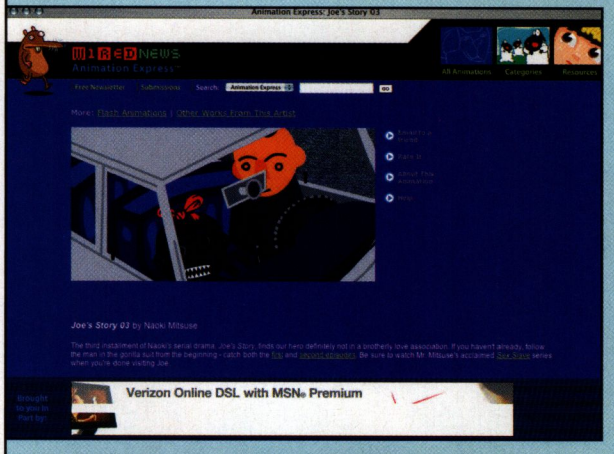
One of the best places internationally to get your work seen is on **[w]** www.iwantmyflashtv.com/. As with all such sites, you simply have to click the 'Submit us stuff' link to find the best way to send your material, but do read the terms and conditions first.

Naoki Mitsuse

www.goultralightsgo.com

Wired Animation Express

www.hotwired.com


Animation Express: Joe's Story 03
WIRED NEWS
Animation Express
Joe's Story 03 by Naoki Mitsuse
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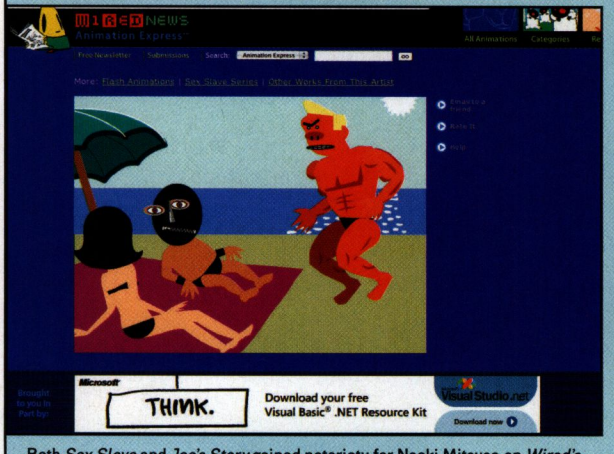
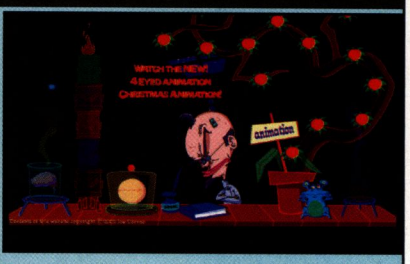
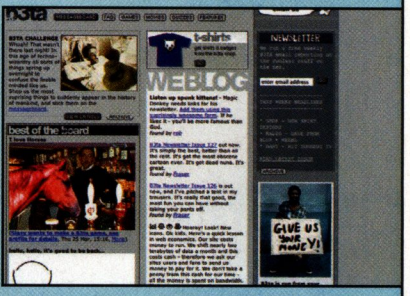


Both *Sex Slave* and *Joe's Story* gained notoriety for Naoki Mitsuse on *Wired's* Animation Express which, sadly, is no longer updated.



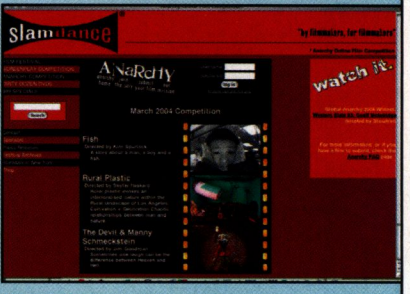
Joe Corrao

Film festivals and a dose of *Wired* brought Joe Corrao to prominence, including his animation for *Flash* serial *CyberSlacker.* Visit **[w]** www.4eyedanimation.com and **[w]** www.joecorrao.com



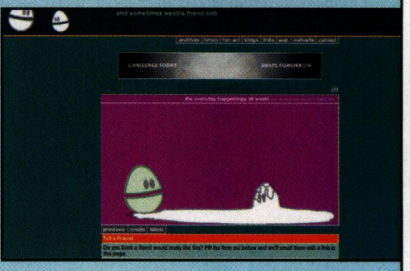
B3ta

B3ta at **[w]** www.b3ta.com/ has been responsible for the massive exposure of such online favourites as *Weeblstuff* and *RatherGood.*



Anarchy

Anarchy at **[w]** www.slamdance.com/anarchy is a monthly festival to which you can submit your cartoons. Note that there's an entry fee and a need to submit work in NTSC video format.



Weebl

The simplicity and humour of the Weebl Web site at **[w]** www.weebl.jolt.co.uk has meant that it's become a B3ta favourite and a success on television.

Weebl, whose Weebl and Bob has become a B3ta regular. "Our newsletter is read by over 100,000 people a week so if you're in it – then your work will be seen," says Rob Manuel. "Our readers include connected people in advertising, TV and the media generally, so if something has legs then often interesting things happen."

"I've always drawn cartoony stuff and used *Flash* at my previous job as a Web developer so animating wasn't a huge leap really," says Jonti Picking. "I use *Flash* for all my animations and have made a series of *Weebl and Bob* for MTV:UK and several adverts for Anchor Butter for TV too."

Enter film festivals

Naoki Mitsuse also has this advice on getting noticed. "Online and offline film festivals," he recommends. "If it's good, it'll get noticed whether it's style or content. AWN.com has good leads on legitimate film festivals looking for submission."

AWN.com, or the Animation World Network, features a wealth of resources for both aspiring and established animators. It caters to the film-based and the *Flash* fanatics and features an extensive listings section all about upcoming film festivals available to animators. There's also an editorial section where you can read all about fellow animators and issues in the industry. It's certainly one to add to your bookmarks. Also, FlashForward occurs two to three times a year in New York, San Francisco and Europe, so it's worth keeping an eye out for its *Flash* Film Festival. Look out, too, for the ResFest at **[w]** http://resfest.com and onedotzero at **[w]** www.onedotzero.com, though these tend to be a little more arts based.

Whatever it is you decide to do in order to promote your own Web cartoon, you'd be advised to take advice from those who have come before.

"Have fun but stay focused," advises Naoki Mitsuse. Joe Corrao is philosophical: "I learned way back that all I can control is the quality of my own work and if people like it, so be it. Find a style that makes you happy and perfect it."

And when you fancy hitting the sack after a hard day's tweening, remember Weebl's parting shot: "Sleep is for the weak." ca•p

FESTIVALS AND EVENTS

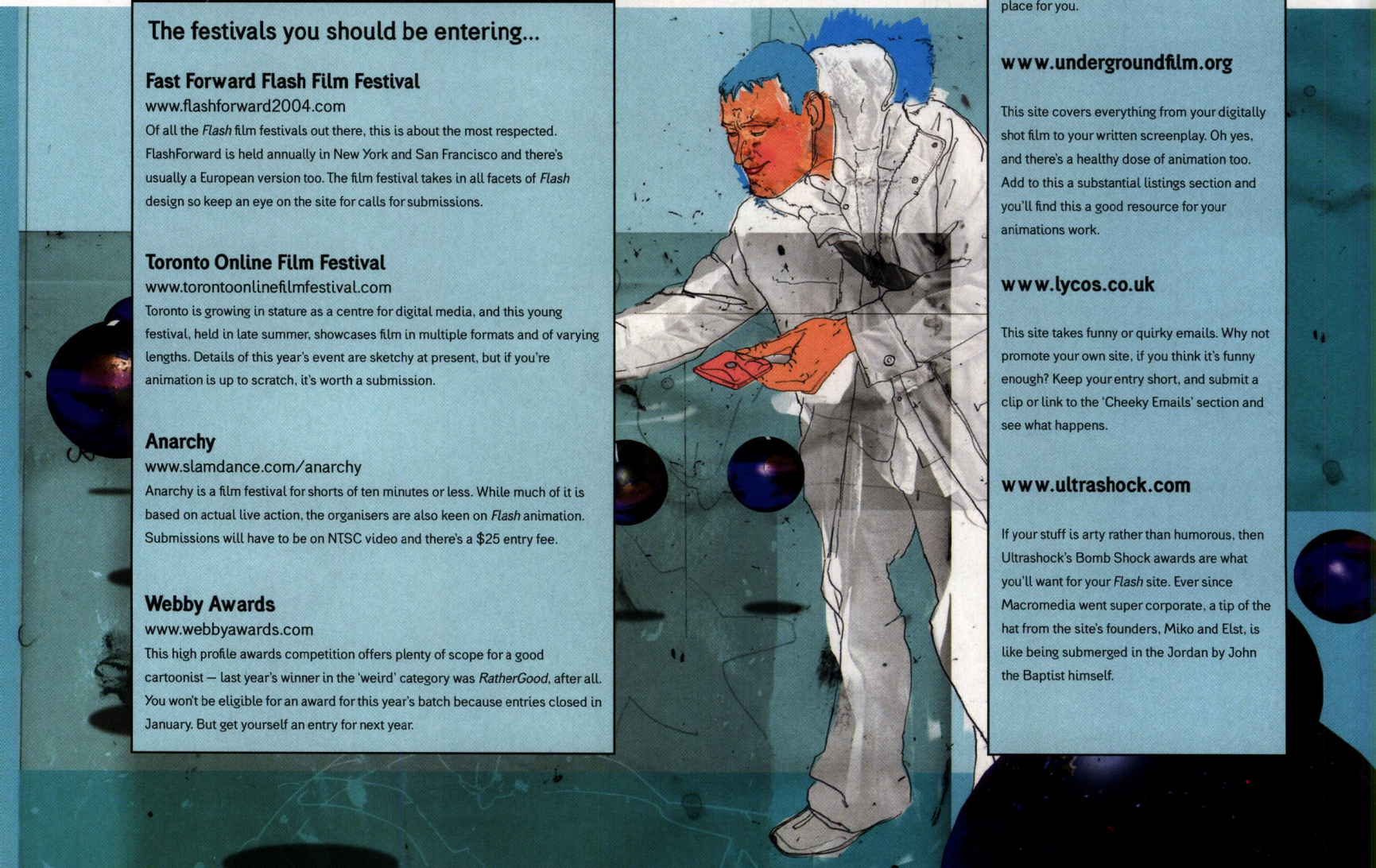
The festivals you should be entering...

Fast Forward Flash Film Festival
www.flashforward2004.com
Of all the *Flash* film festivals out there, this is about the most respected. FlashForward is held annually in New York and San Francisco and there's usually a European version too. The film festival takes in all facets of *Flash* design so keep an eye on the site for calls for submissions.

Toronto Online Film Festival
www.torontoonlinefilmfestival.com
Toronto is growing in stature as a centre for digital media, and this young festival, held in late summer, showcases film in multiple formats and of varying lengths. Details of this year's event are sketchy at present, but if you're animation is up to scratch, it's worth a submission.

Anarchy
www.slamdance.com/anarchy
Anarchy is a film festival for shorts of ten minutes or less. While much of it is based on actual live action, the organisers are also keen on *Flash* animation. Submissions will have to be on NTSC video and there's a $25 entry fee.

Webby Awards
www.webbyawards.com
This high profile awards competition offers plenty of scope for a good cartoonist – last year's winner in the 'weird' category was *RatherGood*, after all. You won't be eligible for an award for this year's batch because entries closed in January. But get yourself an entry for next year.



SEE AND BE SEEN

These are the places you should be submitting your Web cartoons to...

www.iwantmyflashtv.com

I Want My Flash TV is one of the most well-regarded sites to which you can submit *Flash* movies. The site is always on the hunt for new material from a broad range of genres, from comedy to horror. But make sure you understand the terms and conditions.

www.b3ta.com

This site sent *RatherGood* and *Weebl and Bob* into the stratosphere. Both now have presences on television. The emphasis here is on humour rather than experimentation, but if you've got funny stuff, this is the right place for you.

www.undergroundfilm.org

This site covers everything from your digitally shot film to your written screenplay. Oh yes, and there's a healthy dose of animation too. Add to this a substantial listings section and you'll find this a good resource for your animations work.

www.lycos.co.uk

This site takes funny or quirky emails. Why not promote your own site, if you think it's funny enough? Keep your entry short, and submit a clip or link to the 'Cheeky Emails' section and see what happens.

www.ultrashock.com

If your stuff is arty rather than humorous, then Ultrashock's Bomb Shock awards are what you'll want for your *Flash* site. Ever since Macromedia went super corporate, a tip of the hat from the site's founders, Miko and Elst, is like being submerged in the Jordan by John the Baptist himself.

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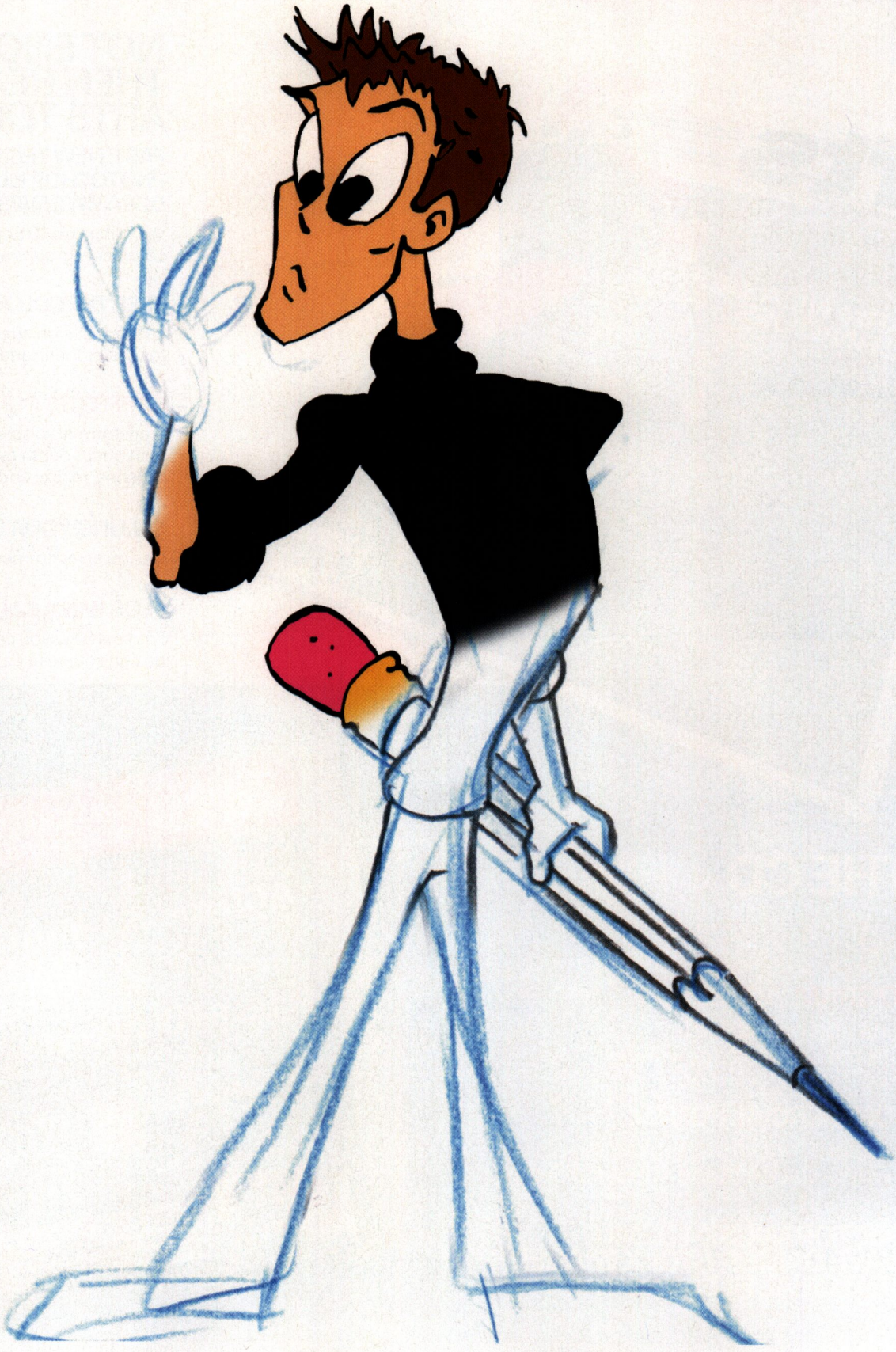


50 ANIMATION TIPS

WHATEVER THE FIELD OF ANIMATION – 2D, COMPUTER OR PUPPETS – THE GOAL IS THE SAME: TO CREATE SEAMLESS, ORIGINAL ANIMATED CHARACTERS WITH WHOM YOUR AUDIENCE WILL EMPATHISE. HERE ARE 50 ESSENTIAL TIPS THAT WILL HELP EVERY ANIMATOR ACHIEVE THESE AIMS...

GETTING STARTED

1. As obvious as it may seem, you should make yourself comfortable when animating. Ensure you have everything you need before you start working because concentration is broken when your back is aching or you're missing some equipment.

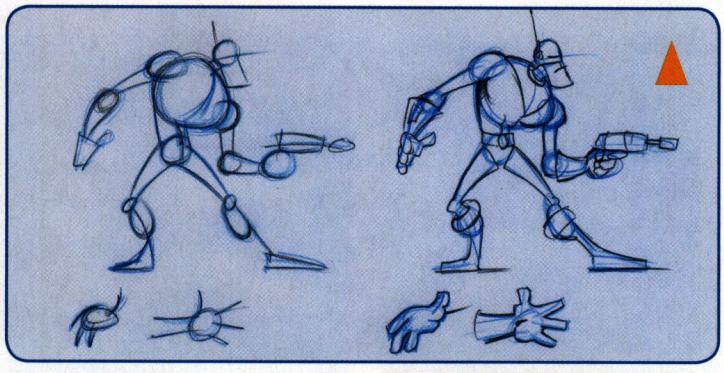
2. Always keep a model sheet or a drawing of the characters you're animating. This ensures you don't forget their physical characteristics. For example, two tufts of hair can easily be animated as three or one. Or a shiny button on a coat may be lost in some scenes. Keep your work consistent.

3. When designing characters, remember you're going to have to animate them. The more complicated and detailed they are, the more difficult they'll be to animate, and the longer it'll take you to complete the job. This could lead to sloppiness if you end up rushing the animation process. Simple shapes go a long way.

4. Construct your characters with basic shapes, before adding eyes and hair. This helps a great deal when it comes to animating them. A simple construction makes it easy to see your characters' shape, size and how they'll move.

5. Make your designs appealing. This doesn't necessarily mean cute and cuddly, but they must be pleasing to the eye. Appealing visuals draw people in and grab their attention. Whether it's the look, charm, design or characters, first impressions count.

6. Think about who your work is aimed at. You might be targeting a young audience, so think about what might appeal to them specifically. What do they want to see? What will grab, and hold, their attention for the duration of your animation?



7. If you haven't done so already, thumbnail a storyboard. It gives you a much clearer idea of what's happening in the scene, where the characters are in relation to one another, and it ensures continuity from one shot to the next.

8. When storyboarding, look through your scenes and work out which scenes can be re-used. If two scenes are similar, can you re-use a character or action? If a character is laughing and laughs again later, consider re-use. This will save you lots of time.

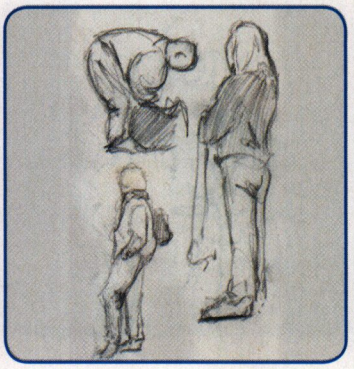
9. Try to make an animatic. Do this by filming each scene of your storyboard. If a scene is two seconds' long, film it for two seconds, and so on. You'll already have seen your film in storyboard form, but filming it in this way is useful for seeing if your film will work visually.

10. Remember continuity. When cutting from one scene to the next, keep the action linked. It's odd, and jarring, to see an old man holding a stick at the end of one shot, and then see the stick resting on a table in the following shot.

11. Plan the action before animating. Thumbnail your scene on a sheet of paper, mapping out what's happening with the movement, action and dialogue. This helps you to determine if an action is right for the scene or if it needs to be different. It'll also save you a lot of time later on.

12. Use layouts for your scene. Layouts are larger and more detailed versions of your storyboard on which you can make detailed notes of what's happening in the scene. It's a visual reminder of what needs to happen, allowing you more time to animate instead of thinking about what happens next.

13. Make sure your backgrounds stay consistent throughout your scenes. As with character model sheets, draw your set or scenery like a blueprint. Use these as reference to prevent your backgrounds from changing in separate shots. They also help to establish where your characters are in relation to one another.

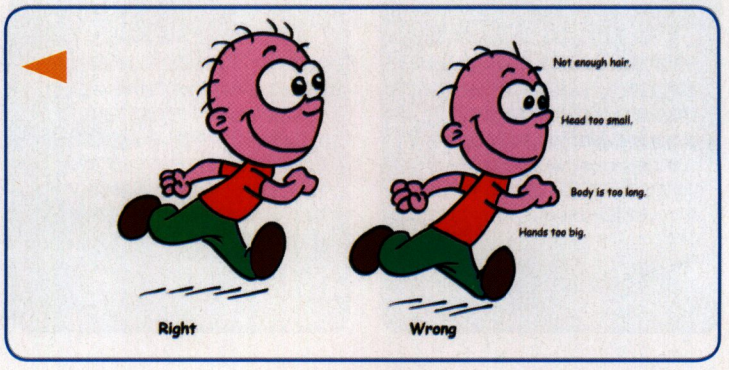


14. Use camera moves. Panning shots can be used to tell the story as well as create mood. Moving the camera helps to establish shots and direct the audience's way of thinking. If you can't fit everything in shot and don't want to make the visuals small, add a pan.

CAPTURING THE IMAGE

15. If you're finding a pose difficult to produce, it might be easier to sketch it on a piece of paper. Try different variations until you get it right. Thinking too much about something can make things harder. If you're still having trouble, take a break.

16. Remember volume and mass. With numerous drawings of the same character, shapes and sizes have a tendency to change, whether it's the body and arms or even the nose and eyes that grow or shrink. You want to keep your character consistent, so refer to the model sheet if there are discrepancies.



17. If you're drawing a character and finding it difficult to reproduce the same drawing for a new move or pose, take your original drawing and trace it. Then make the changes that are needed. Don't waste time if you can find shortcuts.

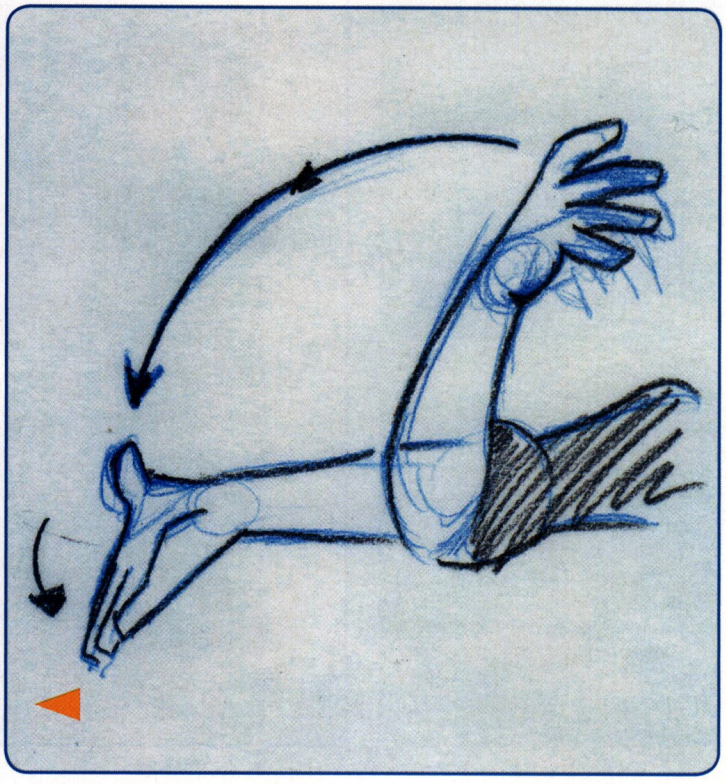
18. You'll often find when you've done a drawing that there's something not quite right about it. Turn the paper over so you're looking at the back and hold it up to the light. You'll see from the reverse image if any of the drawings are wrong.

19. Become more observant. Look at things around you and watch how they move. You see people walking every day, so take note of *how* they walk. Do they bounce, shuffle, or glide? Understanding how things in everyday life move will generate more energy in your animations.

MOVEMENT AND LIFE

20. When starting a piece of animation, remember to work loosely. Use construction. There's nothing worse than spending a lot of time on a beautiful-looking piece of work and then discovering it doesn't work.

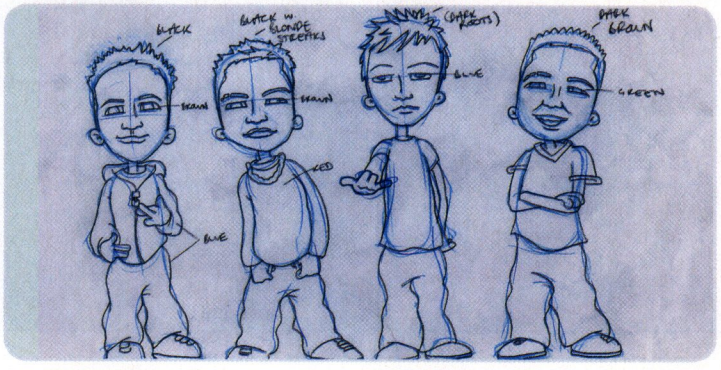
21. If you're unsure of a movement or finding something difficult to visualise, don't be embarrassed to get up and act it out. Think about what the body is doing, how it moves and why. It also helps to have a mirror to hand.



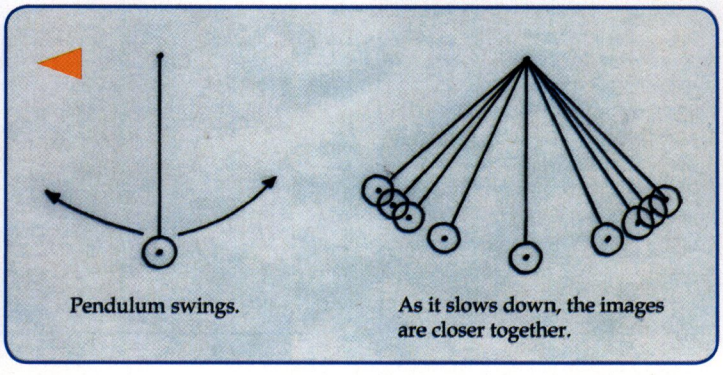
22. Try not to over-exaggerate a small movement. Instead, make it subtle. If a girl turns her head slowly, her hair should flow and settle into place softly. There is a tendency to over-animate the move. Tone down the animation so that the object doesn't look as though it has a life of its own.

23. Most things in life move within an arc. If an arm is bent and then straightened, it will pivot from the elbow and arc round. Very few things in life, excluding mechanical objects, move without the action of the arc.

24. Timing is always important. The speed at which your work moves helps the animation appear more believable. Someone walking too fast might appear a bit odd. The more poses in the movement, the slower it'll be; the fewer poses, the faster.



25. As the movement starts and ends, bring the images closer together. This cushions your animation and makes it look less mechanical. As a pendulum drops, it starts to slow. It speeds up as gravity takes hold and then slows down again to swing the other way.

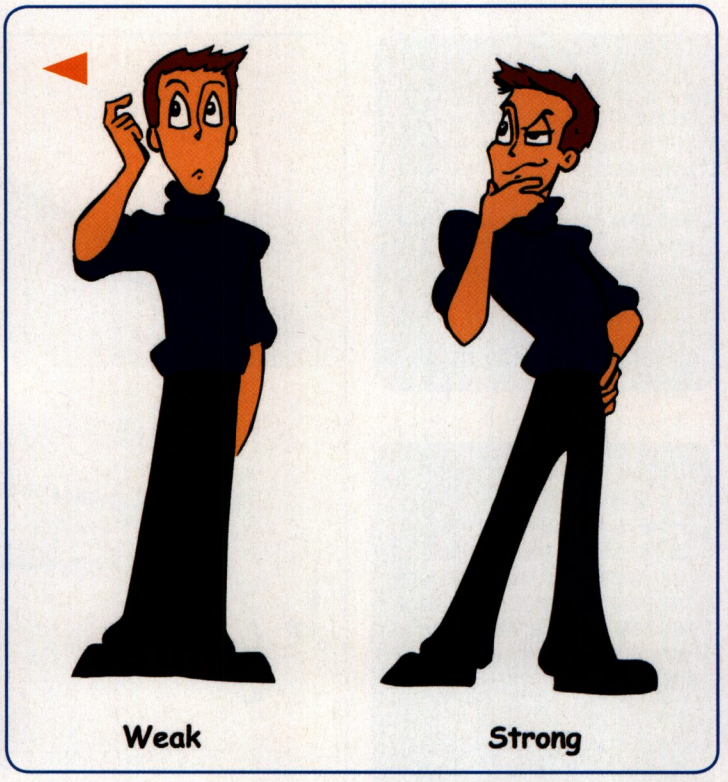


Pendulum swings.

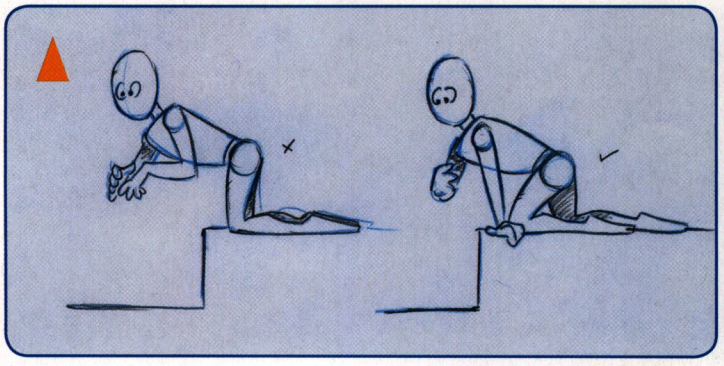
As it slows down, the images are closer together.

26. If you have a scene where a character isn't moving for any particular reason, give it life with a couple of blinks. This ensures your character doesn't look like a flat cardboard cutout.

27. Use strong poses. There are always times when a character isn't moving, so to avoid it looking static and wooden, give it a posture or pose that involves it in what's going on in the scene.



28. Always think about balance and weight. Does your character look as though it's about to fall over? Is it leaning on something? Think about how big it is and if its weight will determine how it'll move. The larger the character, the slower and heavier it will be.

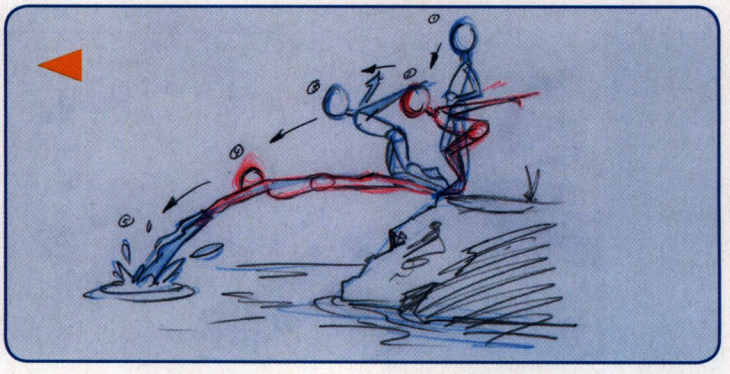


29. Involve your character with others in the scene by making them all focus on the main point of action. This can be as subtle as eye contact. If some characters are standing around staring into space, they'll look lifeless and uninvolved.

30. Show your character thinking. A simple movement in the face can make the difference between hard concentration and a pause for an answer. A rise of an eyebrow or a shift in the eyes are good thinking actions.

31. It's easy to neglect the quality of the in-between poses. It's often assumed that they're not as important as the main poses because they're part of a movement that takes the character from one pose to the next. Make every movement count.

32. It sometimes helps to sketch a whole movement on one sheet of paper, from the first pose through to the last. This helps with positioning and motion, because you can see if the movement works and if anything needs to be added in order for the action to work.



33. Don't overcrowd your scene with unnecessary drawings and animation. Tell your story in the simplest way you can. It's easy to keep adding animation to try and make things look good, but over-animated movements can sometimes be too much for the eye to keep track of.

34. Another example of over-animating is 'floating'. It's often thought that a character is dead if it's not moving constantly. But this isn't the case. People tend to overcompensate by giving a character swaying limbs and a very uncomfortable posture, as if they're floating.

35. Keep in mind that animation is filmmaking, so make your characters act. Remember what's happening in the scene and how your character is involved. Think of the emotion and attitude and don't forget the motivation.

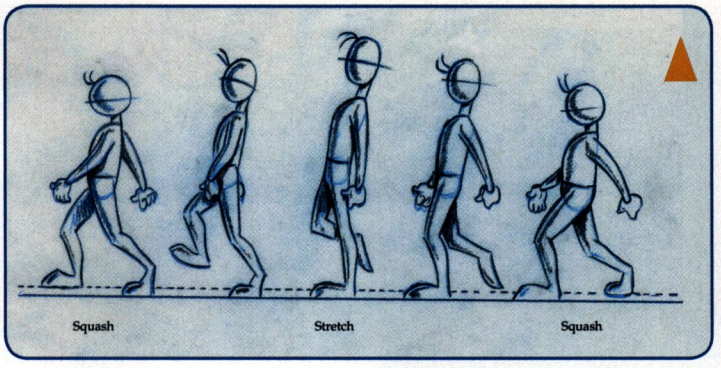
36. Know your characters and add characteristics that fit their personalities. Imagine how they would react in certain situations. Do they have a history that would help drive their actions? Do they have little traits such as a nervous twitch or quivering lip?

37. Include secondary action – this adds a bit more realism to the animation and helps your work to look less robotic. If a character is walking along, its hair or clothes will also move with the action. In addition, the character might turn its head or look at its watch.

38. When animating a walk cycle, keep the foot that's making contact with the floor fixed. When a character is walking, it often seems like the foot slides with the movement. This is fine if they're on ice, but rarely is this the case.

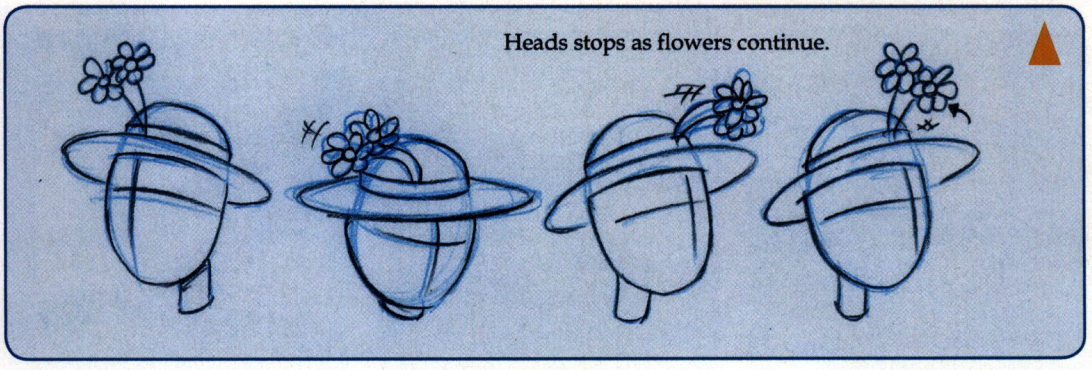
39. In a walk cycle, remember to loosen the upper body. Try not to make it too rigid or stiff. Swing the arms, relax the shoulders, nod the head slightly. 'Squash and stretch' can also help with loosening up your character.

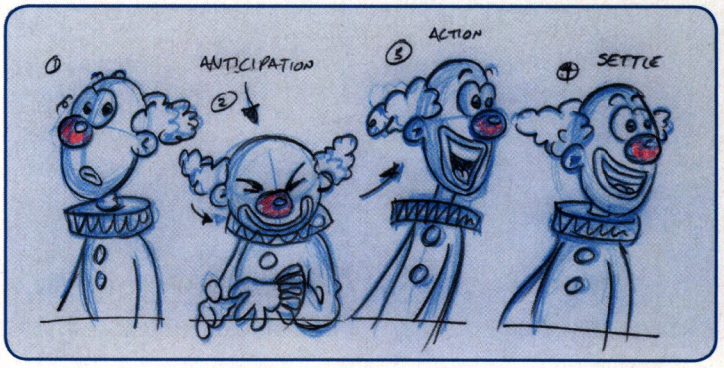
40. 'Squash and stretch' is one of the main principles of animation and it's widely used throughout the industry – it helps make your animation look less rigid and stiff. Relaxed and bouncy movements give you character a more lifelike look.



41. Make good use of follow-through and overlapping action. If someone's wearing a flowered hat and turns their head, the feathers will still move slightly even when the head has stopped turning. The speed and time the second object takes to stop depends on the weight of the object.

42. Use anticipation in your animation. In a movement, there's often an action made in its preparation. The arm swings back before throwing a ball; a deep breath is made before a shout. It also helps the audience determine what is about to happen.

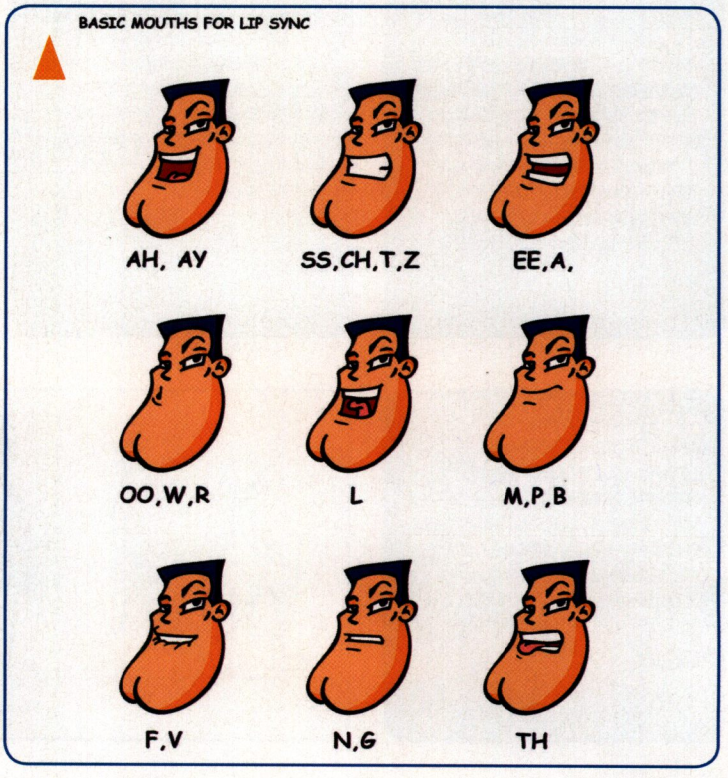




SOUND

43. When it comes to lip-sync, try not to animate every sound. Use basic mouth positions. Listen for dominant sounds in the dialogue and use the mouth position to fit that sound. Once that's done, animate in-betweens to help cushion the movement.

44. Before animating, draw different poses to see what works best with a piece of dialogue. Body language can visually carry a lot of what's happening in a scene. If you take a simple sentence and give it different poses, you'll notice how much the attitude changes.



45. Use gestures and body language to emphasise certain parts of the dialogue. If they're aggressive, they might point on loud expressive words. Involve the character's body in what they're saying. Do they take a breath mid-sentence?

46. Sound effects can carry quite a bit of the story. Think about where you can use a sound to tell the audience what's happening without having to animate. Do this with the action off screen. For example, an explosion is heard and the scene cuts to rubble. No animation is needed.

IMPROVING YOUR WORK

47. Get other people to look at your work and ask them to tell you if they think something doesn't look right. It's far too easy to be protective over your own work, making it difficult to see errors that you may have made. Be strong and get used to taking criticism.

48. Whatever field of animation you're in, life drawing is very important. It helps you understand anatomy, balance, weight and sometimes movement. The greater the knowledge you have in these different areas, the better your animation will be.

49. Always keep a sketchbook with you. Draw whenever you can: at the bus stop, in town, at home. Capture movement and gestures, poses and body language. All this helps to give you a good understanding of life, enabling you to produce quality animation.

50. Stop and rest every once in a while. Quite often, trying too hard prevents you from doing your best work. Learn to relax and don't get too stressed if something isn't going right. Put your work down and do something completely different. In most cases, getting a good night's sleep will help. ca▸p

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p68 TUTORIAL: Get emotional in Flash

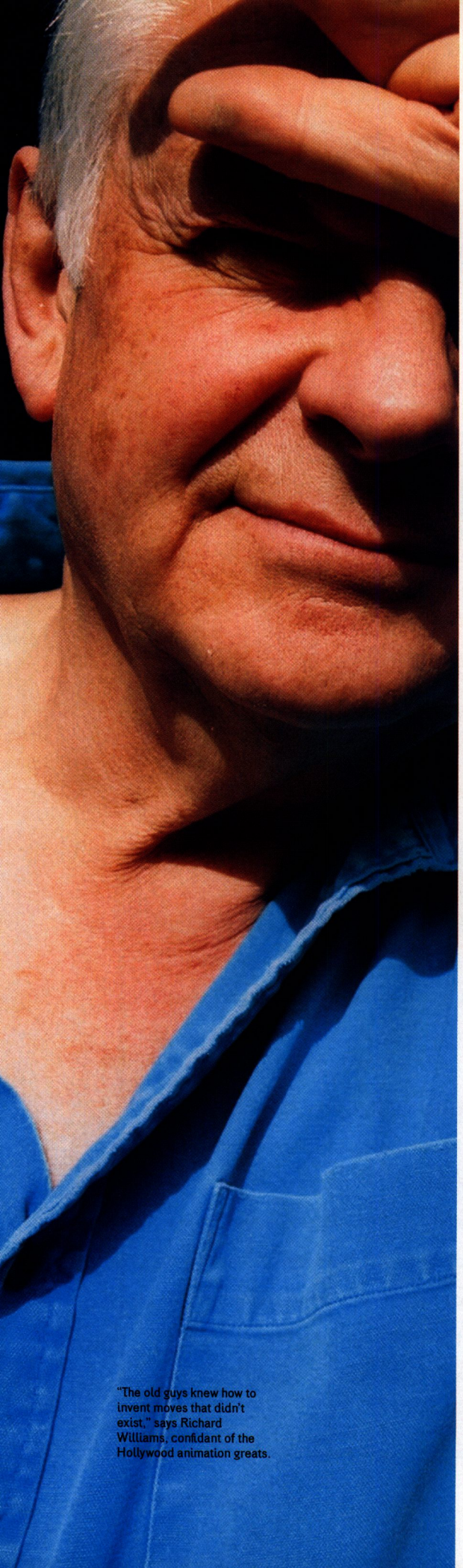
Take your characters from happy to sad and from angry to surprised with this exclusive tutorial from Triffic Films.

GET YOUR ANIMATION ON TV

Ever since the golden age of television animation, in which Warner Bros, MGM and Disney battled it out for domination, television has been an ideal medium for broadcasting cartoons. In recent years, TV animation has been granted a whole new lease of life, with hot companies such as Aardman Animations (see page 56), Triffic Films (page 66) and Fictitious Egg (page 48) creating TV shows that entertain and delight the mass audience that the medium pulls in.

Hardware and software development over the last few years has meant that companies are now capable of producing TV shows on a shoestring budget – take Fictitous Egg, for example: all the company's mainstream animated TV hits are built entirely in *Flash*. Thankfully, using *Flash* for TV content isn't as difficult as it sounds. Turn to page 50 for our exclusive tutorial from Andy Wyatt, Animation Director at Fictitious Egg.

Making characters bond with the audience and move in a realistic manner has always been *the* challenge for animators, and getting emotions right is often a key part of making your character act realistically – so we've teamed up with Triffic Films to bring you a fantastic tutorial, starting on page 68, which shows you how to create a character that's in touch with his emotions. You can't afford to miss this if you're serious about animation and creating cartoons for television broadcast.



"The old guys knew how to invent moves that didn't exist," says Richard Williams, confidant of the Hollywood animation greats.

Richard Williams

Triple Oscar-winning animator Richard Williams shares the techniques of the Hollywood masters in *"an anatomy course in animation"...*

Words: Stuart Dredge, Photography: Charles Shearn

Who framed Roger Rabbit? Movie-goers of all ages know the answer, but do they know who drew him? The name Richard Williams might not be familiar to everyone, but his work certainly is. He scooped two Oscars for his work as lead animator on Disney's ground-breaking movie, adding to the one he won in 1972 for *A Christmas Carol*.

Richard has won more than 240 international awards, working on animation sequences for films such as *The Return of the Pink Panther, The Pink Panther Strikes Again, Casino Royale* and *The Charge of the Light Brigade*, as well as hundreds of commercials. Along the way, he got the chance to work with some legendary animators — men such as Milt Kahl, Art Babbitt, Ken Harris and Grim Natwick — who helped define 20th century Hollywood animation.

Masterclass

In recent years, Richard has toured the world with his Animation Masterclass, a three-day seminar where he passes on the lessons he learned from these old masters. The seminars are attended by today's top animators, some of whom have gone on to win Oscars of their own. He's now condensed all that knowledge into a book: *The Animator's Survival Kit*.

The Animator's Survival Kit is a beautifully crafted book that boils down the knowledge of the old masters into a solid system giving the nuts and bolts of character animation.

The book is a direct link with the golden age of Hollywood animation, when Walt Disney's crack teams were driving the craft forward with giant steps. Although the Disney designers were intensely competitive, they used to share all their knowledge with each other. "It was a messianic time," says Richard. "They had this brand new medium to work with, and Disney was pouring any amount of money and effort in to make it better."

As they grew older, the likes of Babbitt and Harris became more amenable to passing on their knowledge to the outside world too. This is where Richard came in, making it his business to learn their secrets. "It's been the best thing in my life," he says. "The privilege of working with them, and finally understanding why they were doing certain things. People used to laugh at me for doing all this studying, but once I'd got it, I could boil it down. Then those same people called me a genius, but I told them: 'No, you jerks! I did the bloody work!'"

The Animator's Survival Kit took three-and-a-half years to write, but successfully distils the concepts Richard learned into an accessible system. "As far as I know, it provides all the equipment," he says. "You could have some extra bits about getting in and out of holes or whatever, but it's basically all there. If I'd had that 40 years ago... well, I could've done some really good stuff with it!"

One of the best things about the book is its style and structure. It straddles the boundary between textbook and notebook, blending authoritative theory and anecdotes with Richard's own sketches and handwritten notes. It's partly to maintain the tone of the masterclass sessions, but also to appeal directly to his audience. "We're animators," he chuckles. "We memorise pictures more easily than we do text. The book's like *Beano* or *Dandy*, but sophisticated!"

The illustrations that appear throughout the book are deliberately scratchy, like he's scribbled them directly onto the page with a ballpoint pen. Which, as it happens, is pretty much how he worked. The idea is to ensure readers focus on the positioning and mechanics of the characters, rather than get distracted by the surface details.

"When I'm doing a class, I tell them I'm hoping not to do a decent drawing for three days, and that we're going to do stick figures instead," he says. "It means you're not seduced by the look of it. If you even put a simple eye on a character, it'd be attractive, and you'd stop noticing whether the pelvis is up or down. We respond so much to personality, which is great, but as an animator you have to look beyond that."

This is one of the crucial lessons in the book — the importance of underlying mechanics over surface detail. Richard tells the tale of how, as a young animator, he was too hung up on the idea of artistic style. "Eventually I realised that if you're going to be an animator, you have to be a movement mechanic. You can talk about style, acting and emotion until the cows come home, but if you don't know how to move the damn material, how are you ever going to act?"

Puppet love

You might wonder what you can learn from an old-school animator such as Richard. He's not offended at all by the suggestion, pointing out that every generation feels a similar urge. He's well aware of how computers have changed the animation process, but points out how the old principles still apply.

"I'd take up computer stuff if I wasn't so old!" he chuckles, good-naturedly. "There's so much other stuff that I want to do, I haven't got time to mess around with the ins and outs of computers. But I can see how you do it. It's high-tech marionettes!"

That's not a flippant comment. Richard funded himself through art school with his after-hours

marionette show, and he makes parallels between that discipline and computer animation. One common problem is giving characters the appearance of weight – a topic that's covered in full in the book.

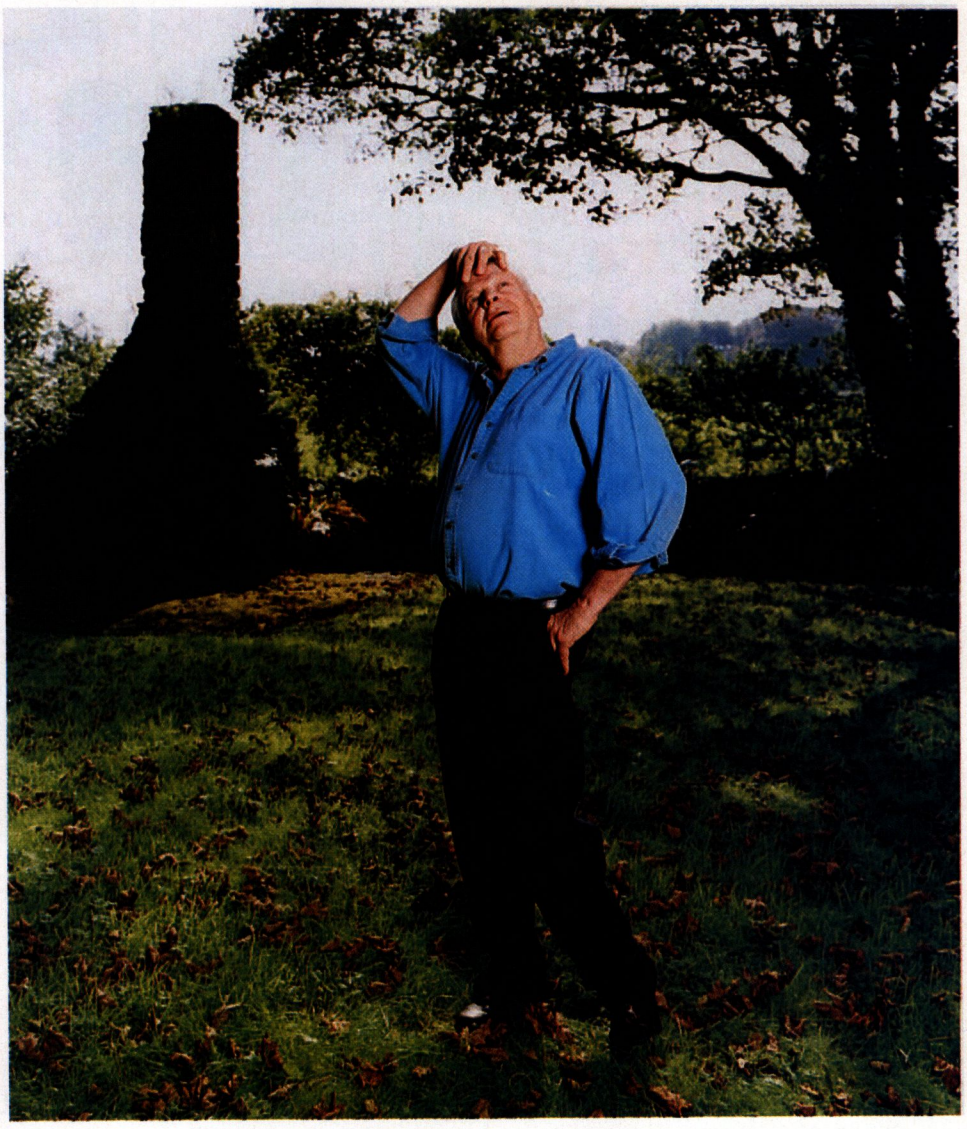
"It's very hard to do things with string," he says. "Marionettes tend to float when they walk, and it's the same with a lot of computer animation. Look at the BBC dinosaur stuff. Some have the right weight, but most don't. It's still very impressive, but you wonder why this giant brontosaurus is walking like a mouse!"

Richard is full of admiration for the cream of modern CG animation, but says that the downside to computers is that they can make it all too easy for animators, reducing the scope for getting in the little touches that make all the difference. Great animation isn't flawless; it's the flaws that make it great.

"In the book, I tried to show how to invent," he says. "Computers make it too easy for you to just copy things. In terms of animation, a machine can copy the middle bit perfectly for you, but you want to make it imperfect by throwing in the old knowledge. The old guys knew how to invent moves that didn't exist, by doing stuff like breaking joints."

That's not to say the book merely upholds the old masters as animation demigods whose work will never be bettered. Far from it. "We want to be as good as the old guys, or better," says Richard. "And there's no reason why we can't. It's possible, especially if you can package the knowledge and absorb it into your bloodstream. Then, it's just a question of talent."

In effect, Richard's system is just the framework for character animation – the basics that, once learnt, can be twisted and turned to your heart's desire. Talking to him, you get a sense that one of the key points about the greatest animators is that they refuse to be shackled by rules. "I always thought you didn't need to know the rules, but that you could just dive in," he says. "And that works too, but it's great to have both."



"Fred Astaire was the human Mickey Mouse. He was breaking joints and doing the moves you can't do, like those Indian temple dancers and the Balinese"

Worth watching

The bulk of *The Animator's Survival Kit* is concerned with setting out Richard's system, but read between the lines and you'll soak up lots of information about the personal qualities needed to be a great animator. Humour is one crucial ingredient, and observation is another. As many of the book's examples show, the best animators take inspiration from the world around them, especially from other people.

Richard clearly gets plenty of ideas from watching random passers-by in the street, but he's happy to outline some more famous examples – both real and animated. "For articulation, you can't beat Pinocchio," he says. "Or even Fred Astaire! He was the human Mickey Mouse, because he had the extra move. He was breaking joints and doing the moves you can't do, like those Indian temple dancers and the Balinese."

He also cites Buster Keaton and Charlie Chaplin as worth studying for their action and movement, while Dumbo gets the nod for pure story structure. But it all comes back to observation, and the special quality he believes animators share with other creative types.

"Animators and musicians are observant like kids are," he says. "It hasn't been bred out of them! What's more, they know that most of the adult world is a sham, and see through the distortions and lies. They're all childlike..."

He pauses, considering the common thread that binds the world's best animators – both past and present. Then he grins, saying: "Of course, some of us are childish..." ca-p

Richard Williams' book, *The Animator's Survival Kit*, is available now from Faber and Faber, priced £30. ISBN: 0571212689. [w] www.faber.co.uk

1

Fictitious Egg

Andy Wyatt, founder of Fictitious Egg, is a frustrated stand-up comic who channels his humour into his cartoons: ***"I haven't got the bottle to get up on stage, but animation satisfies my frustration."***

According to Andy Wyatt, Fictitious Egg is "like the naughty kid at the back of the class, who is unpredictable, funny, a bit rude but very likeable." Andy formed the animation studio in 1997, kicking things off in style with *Tommy Sausage*, the UK's first online cartoon series about the antics of a sexual deviant. "*Tommy Sausage* was our first outing into the world of *Flash* animation, and it established our reputation for being a bit 'out there' and adult..."

Seven years on, the stylishly animated rudeness has won clients such as Channel 4, the BBC, Universal and Atom Films, along with projects such as *Pop Skool* on *Top of the Pops Saturday* and a host of award nominations.

"When we started out, I was more interested in adult-orientated animation than children's cartoons, and the Web seemed somewhere where adult animation was taking off," Andy explains. "This was before South Park, and TV broadcasters weren't interested in that stuff at the time. My background was film and TV production," Andy continues, "but I've always loved drawing and when I left college I was lucky enough to get a job with the late John Halas, one of the pioneers of the British animation industry. It started there."

The company is based in Bristol, home to a thriving animation community, including Aardman, The Bolex Brothers and the Animated Encounters Festival. Andy works with six members of staff in Bristol and four in the London-based Elephant Productions studio, which he shares with fellow studio A Productions: "It's great for team spirit, especially when we beat them at table football!"

Pop Skool

Computer Arts Projects last featured Fictitious Egg back in 2001 (issue 19), when the team had been busy with a *Johnny Casanova* pilot for Channel 4 (the teenager unable to pull a girl), a series of 52 shorts for C4 and Paramount Comedy called *Beastly Behaviour* (about perversion in the animal kingdom), and an array of cartoons for the Web. Since then it's been non-stop animated debauchery and caricature, culminating in one of its most primetime shows, *Pop Skool*.

If you haven't witnessed a Fictitious Egg toon so far, switch to BBC1 on a Saturday morning for *Top of the Pops Saturday* and it won't be long before *Pop Skool* hits the screen. Commissioned by the *TOTP* team, the teachers in this animated showbiz school include Elton John, Ozzy Osbourne and Kylie Minogue, and under their guidance you'll see the likes of The Sugababes, Busted, Britney and Blazin Squad. "I'm lucky to have great caricaturists on my team," says Andy. "We look for the most obvious character traits and hone in on them. We have to be careful, because

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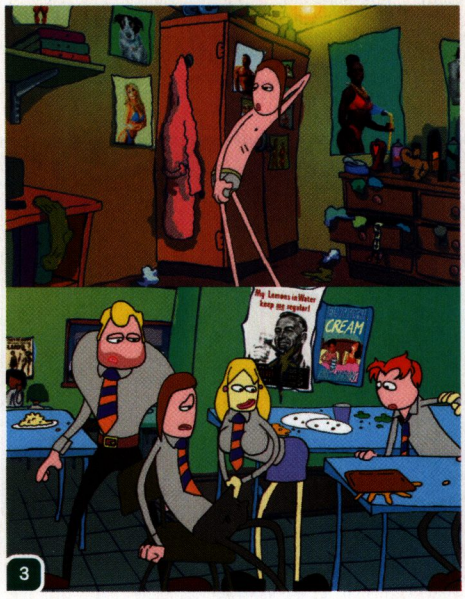

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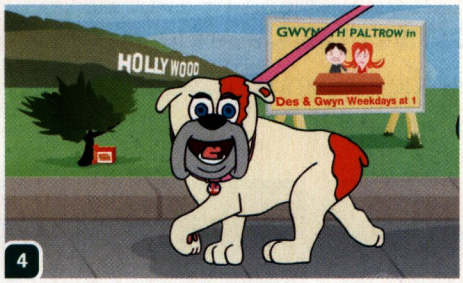

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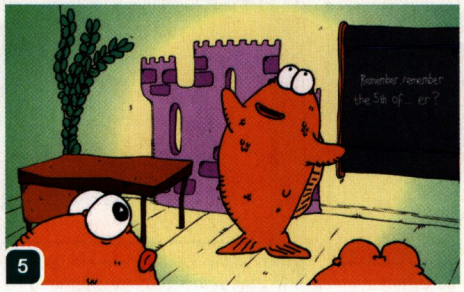

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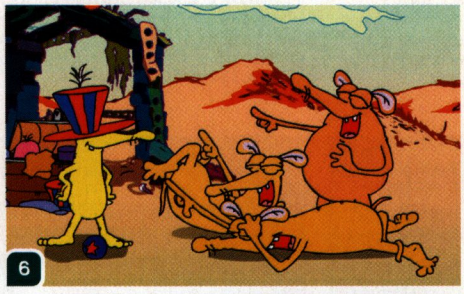

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1. These stills are all from *Pop Skool* – a *Flash MX*-produced animated school, where pop celebrities are shown the ropes of stardom. "The producers of *Top of the Pops Saturday* saw our show *Animal School* on CBBC and liked the concept; they contacted us, and we pitched the idea of *Pop Skool*. The stars with no obvious charisma are the hardest to caricature. Justin Hawkins from The Darkness was a dream!"

2. "We did a series of cartoons for a BBC3 show called *The State We're In*, and had to do a topical two-minute cartoon every week, based on a 70s kids show, with modern politicians as characters. We never knew what we were doing until the Thursday before the transmission date the following Monday. Everyone said it couldn't be done, but we did it, and that's why I'm proud of it." *The State We're In* was shortlisted for the British Animation Awards 2004.

3. "Johnny Casanova is one of my favourite characters – he was created by my colleague and writer Jamie Rix. We designed and created his whole world using Jamie's book, *Johnny Casanova: The Unstoppable Sex Machine*. He's a great character... a teenager who just wants a girlfriend. We've developed it into a TV series, and I can't wait for him to hit the screens."

4. "Walkies with Lola was an insert into *Union Jack*, Jack Osbourne's show for T4, and was basically Lola (the Osbournes' bulldog) bitching about Hollywood. It was very funny and pretty rude too," says Andy Wyatt.

5. *Animal School* was produced for CBBC and CBBC online (see it now at [w] www.bbc.co.uk/cbbc). These 45-second shorts are set in a school where animals are taught life skills: hedgehogs have road safety lessons, sheep have individuality training, and lemmings are excited about going on a clifftop school outing. The goldfish have memory development sessions, which they forget about. "We're currently developing the show into a longer format. It was written by Jamie Rix and features the voices of Nigel Planer and Morwenna Banks."

6. *Uncontrollable Hamsters* is a *Flash* toon aimed at children aged nine and over, and it's in the classic Fictitious Egg style. "My style is quite raw," says Andy Wyatt. "I've always liked to draw fast. That probably gives our style a doodle kind of look, which I think people like because it's quite fresh. I find the perfect draftsmanship of Disney style animation a bit tedious. I guess I'm a bit of an antidote to that."

7. "These are character designs from a brand new series of short animations we're doing for CBBC's flagship children's consumer affairs programme, *Short Change*," says Andy Wyatt. "The three presenters are being animated; they have adventures and solve consumer scams. The show airs on BBC1 in April."

Check out the full array of caricatured celebs and dysfunctional characters, from *Tommy Sausage* through to *Pop Skool*, at [w] www.eggtoons.com. You can contact Andy at Fictitious Egg at [e] andy@eggtoons.com

the art of caricature has a tradition of making people grotesque. We need to keep them attractive, mainly because the audience of seven to 13-year-olds see them as heroes."

As you'd expect, *Pop Skool* has a quick turnaround. Andy explains: "We do two or three episodes a week. It was fun working with the writers: Saturday morning legends Trevor and Simon who are personal heroes of mine. We've had feedback from Busted, Alex Parks, Michelle McManus and Kelly Osbourne – all good. And we got to present a framed picture from the show to Britney Spears. Fearne Cotton came down to the studio to do a 'making of' too, which was great fun. We were all on national telly!"

Comic inspiration

Comedy is central to the success of Fictitious Egg, so it comes as no surprise to hear that the studio's founder is a frustrated stand-up comic. "I haven't got the bottle to get up on stage, but animation satisfies my frustration," admits Andy. "I love any kind of humour that's about people, and I see comedy in everyday life... even apparently boring stuff, like animal behaviour or history." Andy's inspiration is as easy to come across as his comedy, too. "Getting an early train to London and listening to my iPod as the sun rises, probably over Swindon, can be a beautiful, inspiring experience. I told you I was easily inspired..."

Right now, Andy and his team are playing table football. After that they'll be starting another series of *Pop Skool*, working on cartoons for *Short Change*, which starts on BBC1 in April, and on a *Johnny Casanova* series. "We're also working on a Christmas special called www.fatherchristmas.com, and a re-make of *Willo The Wisp*. We get weird, small jobs too, like animating an instructional video of how to use a toilet for an airline..." ca-p

TUTORIAL: FLASH FOR TV

Starting on the next page, Andy Wyatt guides you through the process of creating Flash animation for television broadcast – including character construction using symbols, lip sync and final output...

The following tutorial goes through the production process of a TV cartoon, and requires a basic knowledge of *Flash* and a certain degree of drawn animation skill. The process borrows techniques from traditional animation, but *Flash* enables a relatively small team of artists to produce a comparatively higher quantity of animation. The Elton John character created appears in *Pop Skool* – see it on BBC1, 11am, every Saturday morning.

Part 1: Character construction

Like DIY, good *Flash* animation is all in the preparation. Fictitious Egg shows you how to get started...

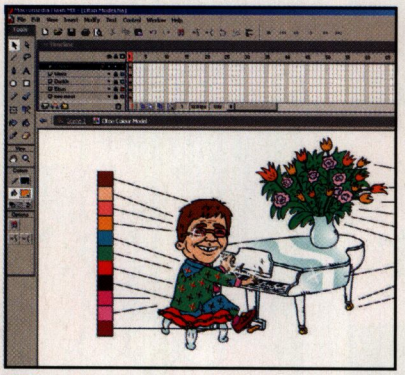
Files on disc

The finished Fictitious Egg .fla file created in this tutorial can be found on the cover CD, in the Software\Tutorials\In The Mag\ Fictitious Egg folder.

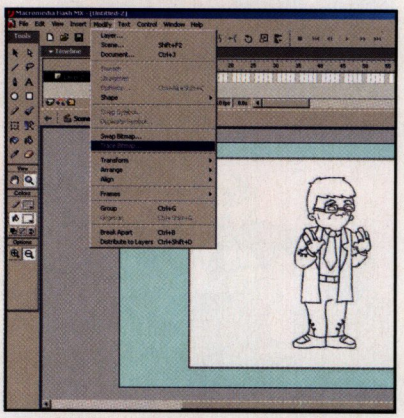
Pencil versus tablet

If you prefer to use a graphics tablet rather than scanning in pencil drawings, try keeping the tool on the Paint option rather than the Line tool. This way, your line will be much more responsive, and you'll have much more control over it. The Line tool takes out any subtleties and makes the line flat and uniform.

1 Sketch out your characters on paper first. Even if you use a graphics tablet, there's nothing as free-flowing as a good old pencil. Don't over-complicate the designs, and remember you should be able to imagine the figure in any number of poses and with different expressions.

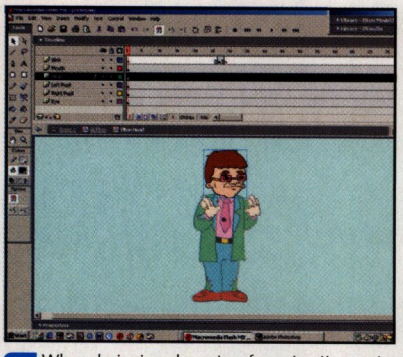


2 If you're scanning in drawings, make sure you trace with a good quality black pen and scan at a minimum of 200ppi. This will help keep the clarity when you vectorise the drawings. Before you start any animation, you need to make a colour model. Choose colours that work on video – avoid deep reds, because they will saturate.

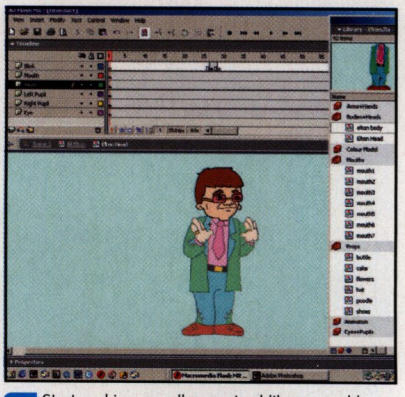


3 Import the drawing (or sequence) into *Flash* through the File>Import sub-menu, then go to Modify>Trace Bitmap to vectorise the drawings. There are a number of settings within this function that you should explore to find a style you like.

4 Colour the drawing using the Paint tool and Paint Mixer window. If there are gaps in your scanned line drawing, use the Close Gaps option from the toolbox. The 'lines' of your drawing are actually paint areas and do not act in the same way as a *Flash*-drawn 'line'.

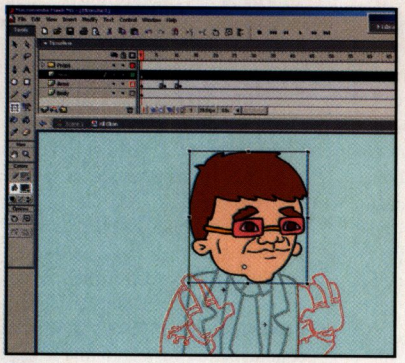


5 When designing characters for animation, get into the habit of keeping as many elements as possible on separate layers, and making them symbols. This will make the characters easier to animate, and much more versatile. Arms, legs, eyes, eyebrows, mouths (that is, anything you may want to move) should all be kept on separate layers.

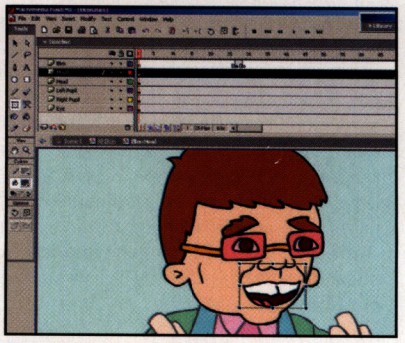


6 Start making a well-organised library, and keep all the separate elements from each character in different folders. This saves time when you start animating, and gives you complete control over the character's movements.

7 Symbols (even if they contain moving pieces of animation) should always be kept as graphic symbols, never movie clips. Movie clips don't work when outputting for TV.



8 The centre crosshair of a symbol should always be placed at a suitable point of articulation, such as the bottom of a head or the wrist of a hand. The symbol will then rotate around that point.



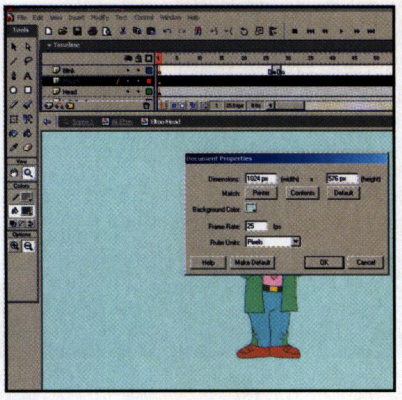
9 When building up characters, remember that symbols can be placed within other symbols. A head symbol for example, might contain the head itself, with the mouth and eyes symbols as two separate layers within that symbol.

Part 2: Preparing the movie

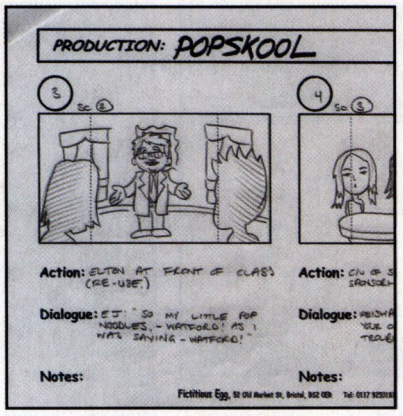
Once you've designed your characters, the next step is to prepare the movie itself. In this section, we show you how...

Flash drawing tools

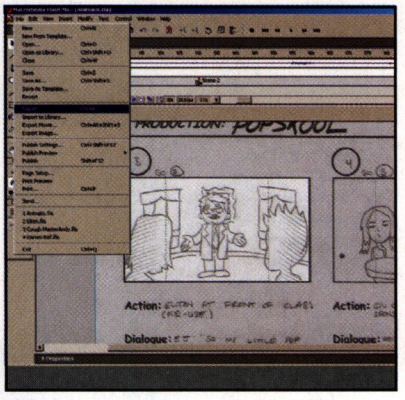
The drawing tools in *Flash* are highly underrated, and the program offers some of the best vector-drawing tools out there. In total contrast to the circles and squares that are associated with *Flash*, by building up layers of colour with a percentage of alpha it's possible to create a very organic watercolour-style design.



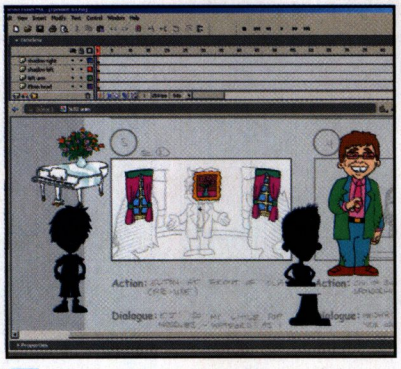
1 Most broadcasters want the animation to be 16:9 ratio, which is 1024x576 pixels. Make sure your animation is set to this ratio in the Document Properties, and, very importantly, set the framerate to 25fps. This is the frames per second rate at which video plays.



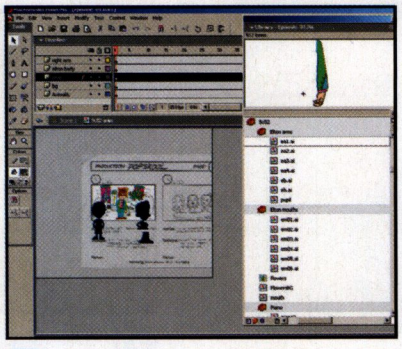
2 To plan your film, draw up a simple storyboard, mapping out all the action in the film. These can be drawn roughly in *Flash* or imported as scanned jpegs. This will give you an idea of how the sequence is going to work visually.



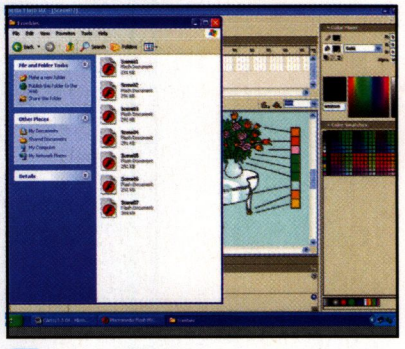
3 Make an 'animatic', which is essentially a storyboard filmed in time to a rough soundtrack. Import your sound file into the timeline, and time out your storyboard images to match the sound. This gives a clear idea of how the film is going to look.



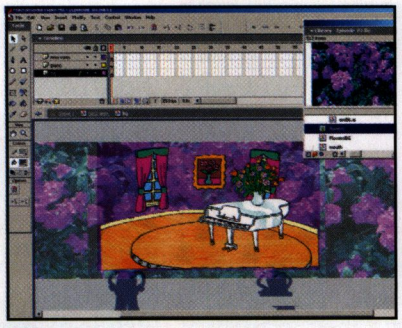
4 Lay out each 'scene' by building up all the elements required in each shot. For example, you need to design backgrounds, props, characters and any extra bits of animation. Use the storyboard image as a guide.



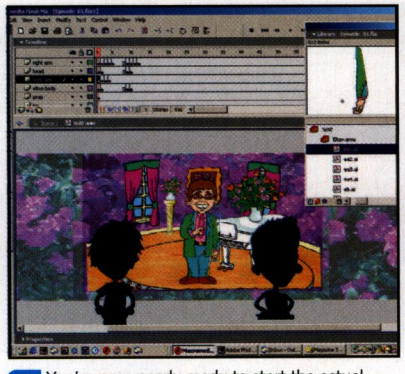
5 Organise the library into separate scene folders, and get into the habit of naming every piece of artwork and every layer in the timeline logically. You'll probably end up with hundreds of separate symbols, which will easily get lost if they're not labelled properly.



6 If your finished film is over a minute long, it's recommended that you split each shot into separate *Flash* movies and edit them together in an editing application. Otherwise your *Flash* movies will become too large and complicated, and frustrating to use.



7 Don't feel restricted to creating your backgrounds in *Flash*. Scanned illustrations and manipulated photographs create a more interesting style. To create more depth, foreground layers can be added. Video resolution is equivalent to approximately 72dpi, so you don't need to import massive high-resolution images.



8 You're now nearly ready to start the actual animation, having prepared all the elements required in each scene. If you're animating directly into *Flash* using a graphics tablet or mouse, then the scene is all timed out ready for you to go.

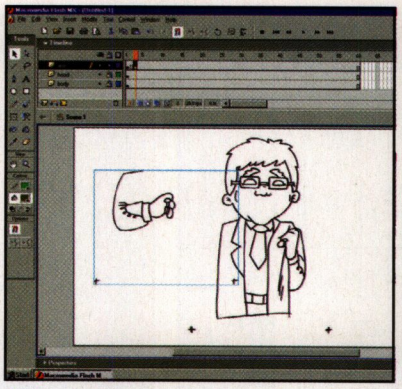
9 If you're animating on paper and scanning in, you need to make a note of how many frames you have for the action, so you can do a rough breakdown of the sound. All the lip-syncing will be done later, but you should work out now if any special mouth positions are required.

Part 3: Animating your characters

Having prepared your different scenes, you now need to make the characters move, talk and, generally, come alive...

Animation techniques

This tutorial uses *Flash* as a tool for colouring and compositing the animation. The skill of the 2D animator is still much required in this process. Study drawn animation and, if you have a DVD player, get some classic cartoon animation such as Tex Avery and go through it frame by frame. Good animation is not about the drawings themselves, but what goes on 'in-between' those drawings.

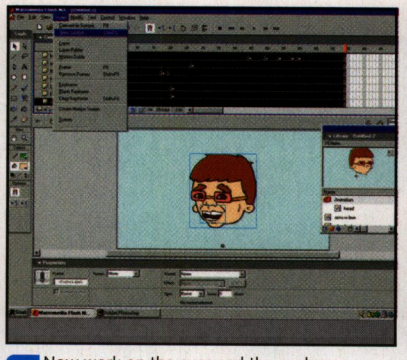


1 All of the following tips apply to every kind of animation, whether you're using a graphic pen or a pencil. If you do use paper, however, draw two registration crosses on every drawing – this will help you register the animation in *Flash*.

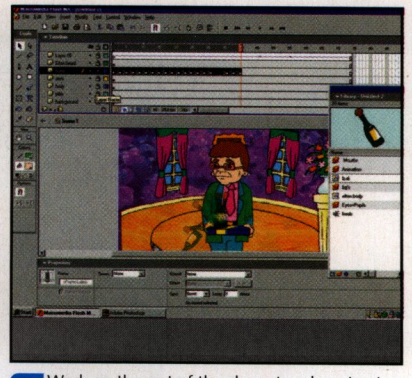
2 There are about eight basic mouth shapes for lip-syncing, which cover all the phonetic sounds that the mouth makes. You need only draw each shape once, and then store them in the library as separately named symbols. To do lip-syncing in *Flash*, make sure the sound object is on 'Stream'.

3 On the first frame of the scene, drag the character's head from the library onto the stage. Create a new layer for the eyes, another for the eyebrows and another for the mouth, and so on. Your character's head alone may be made up of several layers.

4 Scroll backwards and forwards through the timeline, picking out all the phonetic stresses and accents, and create a blank keyframe on the mouth level in the animation. Drop the relevant mouth shape for that sound into the correct position on that frame.



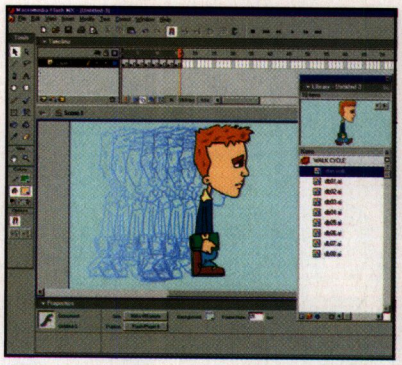
5 Now work on the eyes and the eyebrows frame by frame, giving further expression to the character. You'll find it easier if the pupils have been put on a separate layer, giving you full control. Once the animation works, you may want to put it all into one single symbol by using Copy Frames>Create New Symbol>Paste Frames.



6 Work on the rest of the character, dragging in the elements from the library and keeping them all on separate layers. When moving elements, avoid using the tween function, and animate frame by frame. This gives a much more natural look in the animation timing.

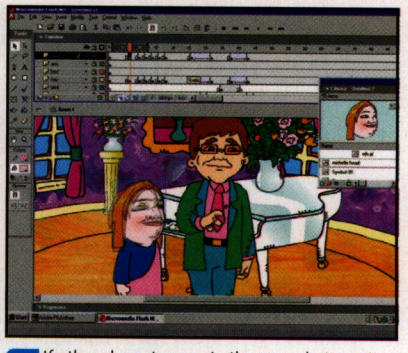
Talking toons

Try to learn the art of lip-syncing, because it'll put so much more life into your characters. Mouths do not simply open and shut; they have very distinctive shapes for each sound. Say the alphabet in front of the mirror, and watch your mouth closely. As a rule, you could probably break a normal talking mouth into about eight positions. A, B, C, E, F, L, O, U are the most basic shapes, as well as the shut position.



7 For repetitive movements, such as walking, it's simpler to animate a 'walk cycle' of 8-12 drawings on the spot, which can then be placed within a symbol. This symbol can then be panned across screen, saving you hundreds of drawings.

8 It's very tempting to over-animate characters, but this can kill the animation as much as too little movement. Just give the character enough movement to get over the emotion of the scene; and if it works, leave it at that.



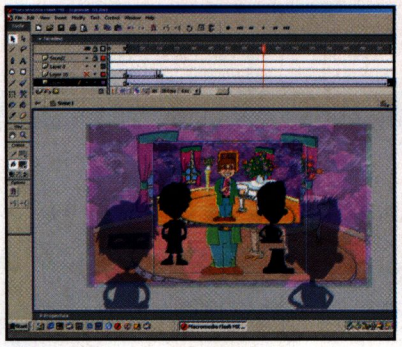
9 If other characters are in the scene but aren't talking or acting, just give them a subtle movement, such as an eye blink or head nod so that they don't look like lifeless statues. Make sure that the movement doesn't distract from the principal character though.

Part 4: The final composition

With all the animation completed, and elements composited into the film, it's time to output your creation to video...

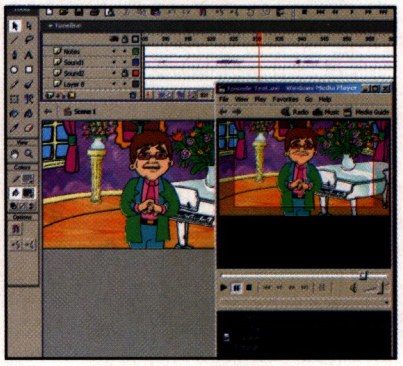
Colour palettes

It's a good idea to create a video-safe colour palette in *Flash*, because many of the colours in the default palette are too rich for video and will saturate or bleed. Reds and oranges are the worst, and dark colours go even darker. Video also has trouble distinguishing between green shades, so stick to more pastel colours. A tape delivered to a broadcaster always has to pass a technical compliance test, and saturated colours will fail.

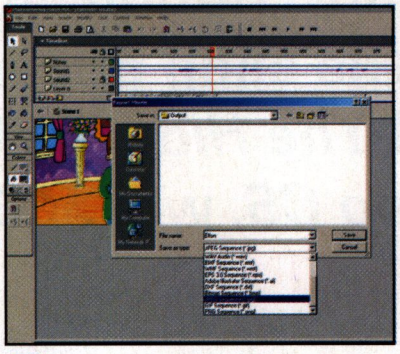


1 To create a 'camera' move in a scene, copy all the animation into a symbol then bring that symbol into the timeline. By enlarging that symbol over a few frames and tweening the movement, you will have created the illusion of a zoom in.

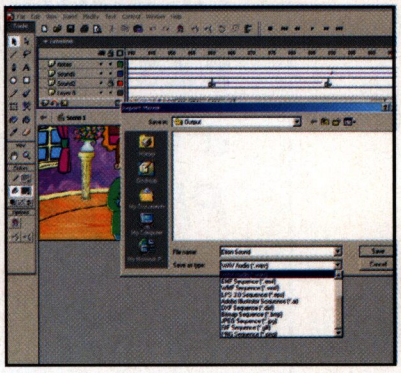
2 Beware of 'TV cut off'. Although your animation is widescreen, many TV sets are not, so when your animation is broadcast it'll be anamorphically squeezed up to fit. This means that there will be an area around the edge of your frame that may be cut off. All the important action should take place within a central 'safe area'.



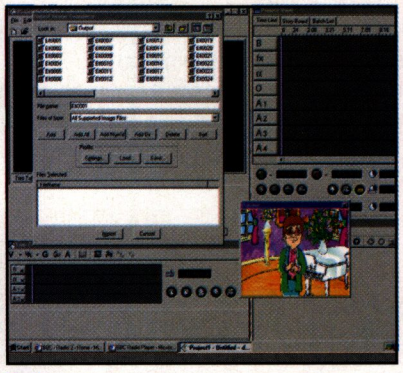
3 If you're unsure if the animation and camera moves are working properly, export the movie as a small QuickTime or AVI to test it. This will play at real time, as opposed to the *Flash* movie, which will not play at a constant 25 frames per second.



4 Once you're happy and have tested the movie, export it as an image sequence (File>Export Movie) either as a bitmap (pict for Macs) or jpeg (100 per cent quality) sequence at 1024x576 pixels. This will export one image for each frame of the movie, so ensure you have enough free disk space.

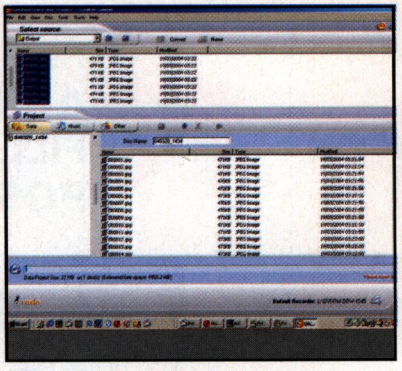


5 You must also export the movie as a sound file, because the image sequence will be mute. It's not recommended to create your final sound in *Flash*, because the outputted sound will not be of broadcast quality – it's fine as a guide track though. Use something like *Audition* or *Logic* instead.

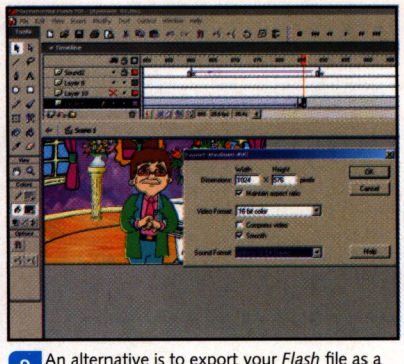


6 The sequence of images can now be imported into an editing software package (such as Adobe *Premiere)*, or into an effects app (such as *After Effects)*. Extra special effects can be put on top of the animation in your chosen package. It's also a good time to check for any 'illegal' colours.

7 Marry up your guide track with the newly created video file in the editing program, and perform any final tweaks to the animation. The animation can now be output to videotape, preferably a digital video format such as DV tape or Digibeta.



8 If you don't have access to an editing program and video tape facilities, burn your sequence of images onto a disc and take them along to a facilities house offering the service. You may also want to use the facilities house to create and mix your sound.



9 An alternative is to export your *Flash* file as a high quality AVI or QuickTime movie, which can then be put onto disc and later onto tape. However, the compression of these formats may be noticeable. Obviously it's best to have as high quality images as possible, so exporting an image sequence is preferable. ca-p

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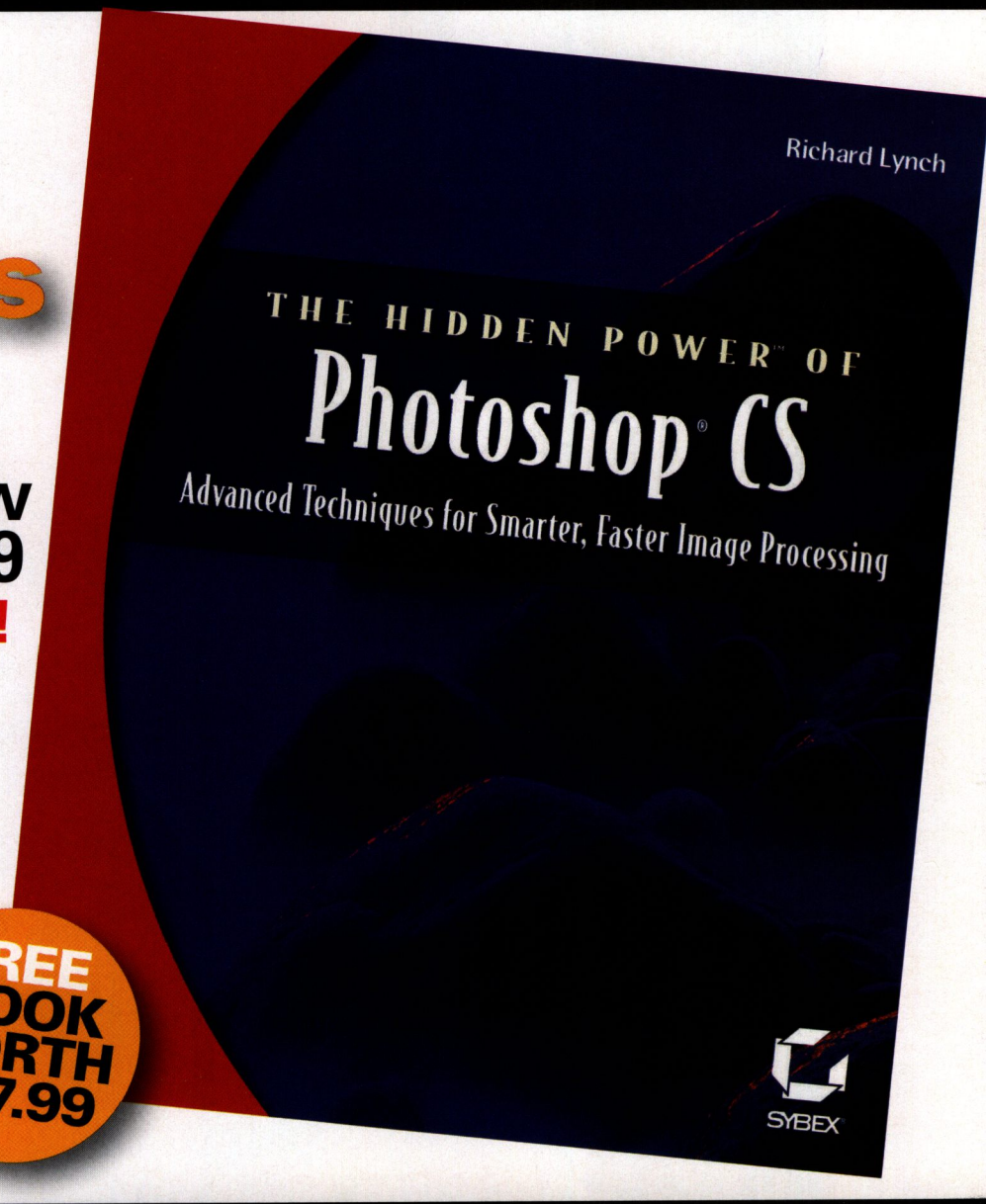

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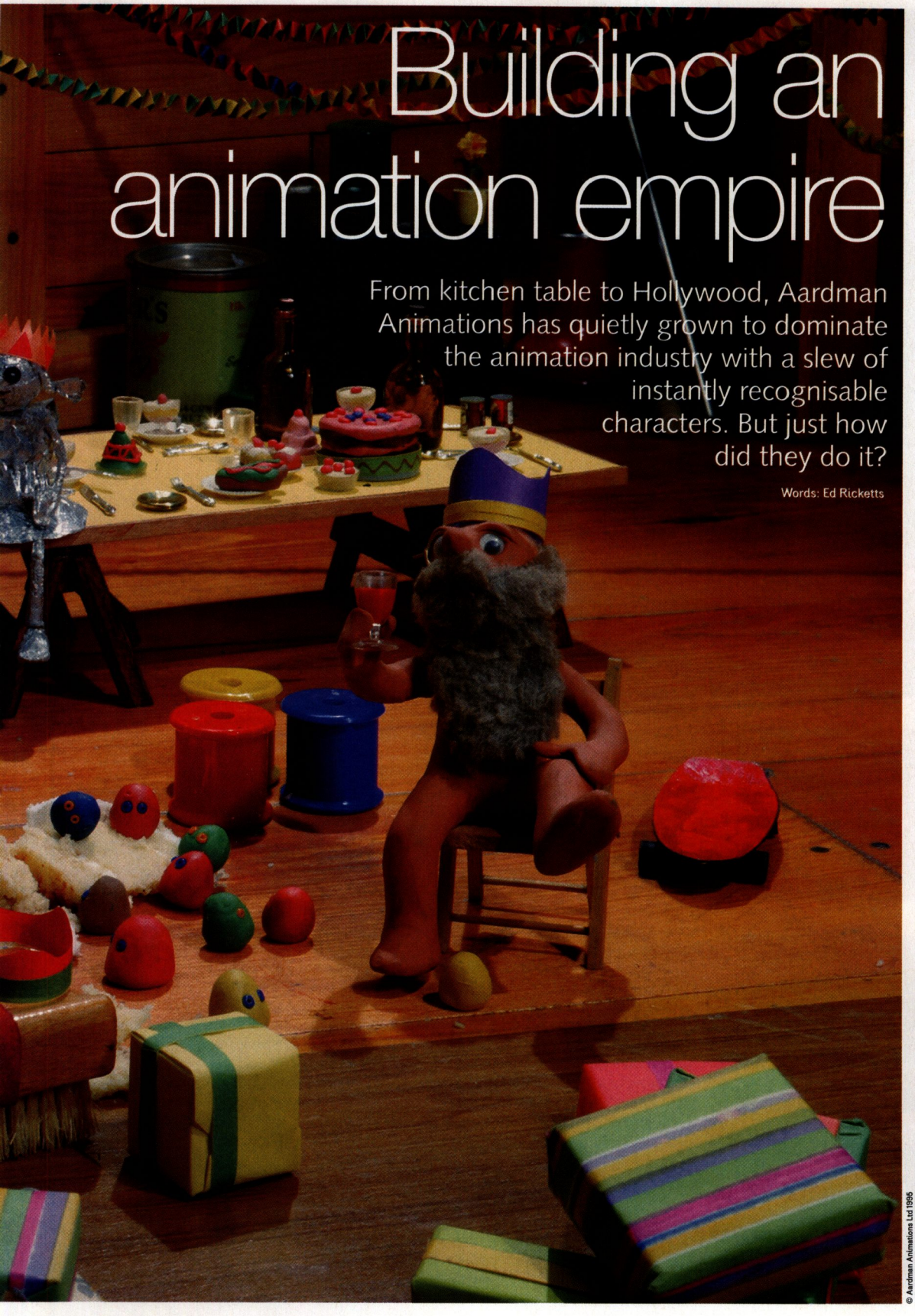
Building an animation empire

From kitchen table to Hollywood, Aardman Animations has quietly grown to dominate the animation industry with a slew of instantly recognisable characters. But just how did they do it?

Words: Ed Ricketts



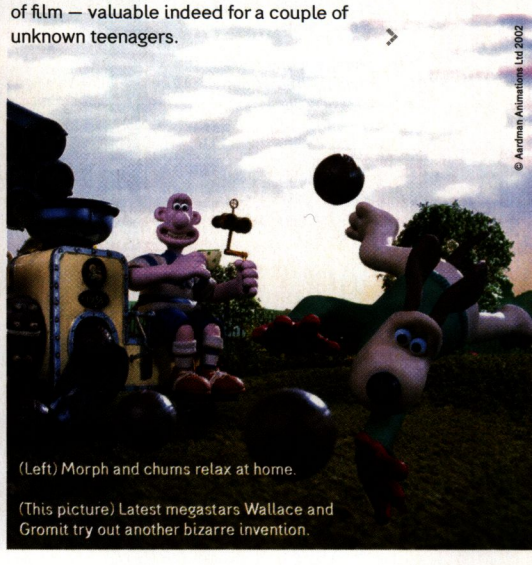
© Aardman Animations Ltd 1995

In the late 1970s and early 80s, a small, brown animated man invaded the consciousness of pretty much any kid watching afternoon TV. He was made of Plasticine (a modelling clay itself familiar to any child back then), spoke his own peculiar language, and had the habit of metamorphosing into various shapes at will – hence his name, Morph. He was also cheeky and rather dim, but hugely likeable.

Just as Morph soon went on to become more famous than the TV series which had spawned him, so his creators, Aardman Animations, would eventually become a household name. Yet in 1980, when the company was already eight years old, you would be hard-pushed to find anyone who had heard of them. Quietly working away at their Bristol studios, animators Peter Lord and David Sproxton were largely content to let their stop-motion creations do the talking for them.

Sproxton and Lord met at school in the 60s. Both of their fathers shared an interest in 16mm cine cameras, so the boys were used to having these around, and would take any chance they could to experiment with them. In true homegrown fashion, the pair's first ever animation was created on a kitchen table, using a blackboard, chalk and a camera. They would draw one frame, take a shot, rub it out and move on to the next. They were, in fact, creating primitive stop-frame animation – the kind that, in one way or another, Aardman has been producing ever since.

After further experiments, they were given the chance to show a BBC producer, Patrick Dowling, some of their work. Dowling was producing *Vision On*, a pioneering programme for deaf children, which focused heavily on visual information and featured innovative animation. He was impressed enough to give them a 100ft roll of film – valuable indeed for a couple of unknown teenagers.



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(Left) Morph and chums relax at home.

(This picture) Latest megastars Wallace and Gromit try out another bizarre invention.

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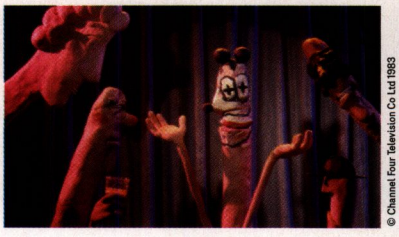
(Top) Rex the Runt and his odd friends, created by Richard Goleszowski.

(Right, top) *Ident*, one of Goleszowski's earlier works, from which Rex was developed.

(Right, middle) *Going Equipped*, part of the *Lip Synch* series.

(Right, bottom) A CG microbe created for *Creature Comforts*.



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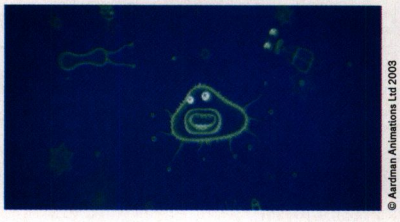

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It was while producing new material to fill this film that Sproxton and Lord discovered their love of 3D animation, using Plasticine to create ever-changing shapes. Ironically, though, it was a traditional cel animation which made their name. It featured a character called Aardman, a sort of Superman parody, in a short skit which the BBC bought for the handsome sum of £15. Flushed with success, they immediately set up Aardman Animations. Legend has it the name 'Aardman' is the phonetic equivalent of 'hard man' pronounced in a broad Bristol accent.

While still at uni, the two founders of Aardman began creating a series of animated shorts for *Vision On*, again using their painstaking, traditional stop-motion techniques. In 1976, Morph was born, usually causing trouble for presenter Tony Hart in *Vision On* and, later, *Take Hart*. Kids and adults alike identified with him, and he was eventually given his own series. Aardman had arrived, but it was only just getting going.

Making conversations

In 1978, impressed by Morph's sophisticated adventures, BBC Bristol commissioned Aardman to create two more adult-orientated animations. The idea behind *Animated Conversations* was to record real-life dialogue in seemingly humdrum situations and then animate a scene around it. What made the concept intriguing was that Sproxton and Lord would not actually be present at the original scene, but would use their imaginations to fill in the visual gaps in whatever way they wanted.

The resulting short films were humorous, dramatic and often surprisingly moving. More importantly, they allowed Aardman to develop the eye for the sort of small but telling detail that has characterised its work ever since: tiny shifts of expression, minor background action, and incredibly human-like animation from, essentially, lumps of clay.

The fledgeling Channel 4 liked the films so much that it commissioned five more in a similar vein, called *Conversation Pieces*. Meanwhile, the studio was growing with the addition of Barry Purves and Richard Goleszowski among others, two established animators with a solid background of imaginative work.

Aardman was beginning to get noticed, and in 1984 it produced its first ad for Enterprise Computers, which depicted rival brands as fossils brought to life. The studio's

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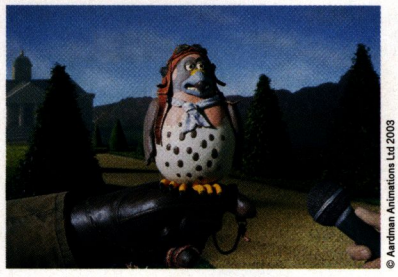

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(Far left) The animation in *Angry Kid* uses a complex combination of models and real human figures.

(Left, top) *War Story*, another *Lip Synch* film.

(Left, middle) Gromit is not a happy dog.

(Left, bottom) A falcon holds forth in the latest *Creature Comforts* series, made for TV.

"The films were humorous, dramatic and often surprisingly moving"

skill at (literally) animating inert objects proved ideal for many brands, including the famous Scotch Videotape skeleton and the Lurpak Butterman. Nowadays it produces around 25 ads a year, many of which use CGI in preference to the more time-consuming stop-motion techniques.

One man and his dog

It was in 1985 that Aardman discovered possibly the most significant addition to its ranks, and invited him to join the company. Nick Park had just left the National Film and Television School, where he'd been working on a film called *A Grand Day Out*. This was in many ways very similar to Aardman's own output: stop-motion Plasticine animation featuring two eccentric and very British characters, Wallace and Gromit.

Park worked on his film for the next few years, as the company produced a steady stream of shorts and ads. Lord, Park and Goleszowski produced an enormous amount of stop-frame animation for the pioneering video of Peter Gabriel's single *Sledgehammer*, which almost exclusively relaunched the singer's career. At the same time, Lord and Sproxton were working on *Babylon*, a much darker and longer piece with – for the first time – political overtones.

In 1989, *A Grand Day Out* was finally released, and in its own way propelled both Park and its lead characters into the public imagination. The subtlety of the animation, combined with the knowing winks and spoofs of various film genres, gained Park his first Academy Award nomination. For better or worse, Wallace and Gromit were here to stay.

While best-known for its instantly-recognisable character animation, Aardman was also becoming more experimental. In 1989 it produced a series called *Lip Synch*, which essentially gave its 'star' animators a chance to play with the familiar idea of animating real conversations.

The results varied wildly. *Ident*, by Richard Goleszowski, was an abstract, darkly disturbing yet often hilarious commentary on the pressure to conform, while Barry Purves' *Next* used puppets and contained practically the whole of Shakespeare's canon in five minutes. Nick Park's contribution, *Creature Comforts*, took the inspired idea of putting the recorded dialogue into the mouths of zoo creatures commenting on their habitats. It was an instant success, gaining Park his first Oscar and spawning a series of commercials based on the concept.

Goleszowski also adapted one of his characters from *Ident* for a spin-off series. Like his previous work, *Rex the Runt* was surreal, cynical, humorous and down-to-earth, perfect fodder for late-night-audience cult success. It was about as far from the crowd-pleasing antics of Wallace and Gromit that could be imagined, yet it still used much the same stop-motion Plasticine

Talk to the animals

Classic moments from *Creature Comforts* series one...

Episode: The Circus, Mr Tickles the seal

"You need to warm all those areas up, your body and then moving on to your voice."

Episode: The Garden, Dave the worm

"I do everything in my power to avoid having to go out in the garden... it's just not my cup of tea."

Episode: Pets at the Vets, Binky the performing dog

"If I know what's the matter with me, I mean I expect the doctor to do something about it... I won't be fobbed off."

Episode: Pets at the Vets, Fluffy the hamster

"I don't think I've got any other scars, not physical ones, mental ones... obviously I've got a lot of them but you can't see them because they're inside my brain."

Episode: The Sea, Oscar the turtle

"The sea has all these creatures that are from other planets... the sea is a big thing."

Episode: Feeding Time, Frank the tortoise

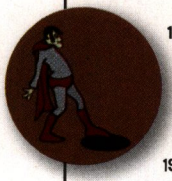
"There are, there are one or two foreign foods I do have, rice pudding, proper pizzas, umm, I like some of the deep pan pizzas."

Aardman timeline

1960s Peter Lord meets David Sproxton at school. They find they share an interest in cine cameras.

Late 60s The pair makes its first animated short, using chalk drawings. Other experiments using cutouts from magazines follow.

Early 1970s Sproxton and Lord show their work to a producer of a BBC TV series, who is impressed enough to give them 100ft of film.



1972 The BBC buys a sequence for £15. Aardman Animations is officially formed.

1976 Sproxton and Lord create Morph, the plasticine man featured in *Vision On*.

1978 BBC Bristol commissions Aardman for a series called *Animated Conversations*. It combines recordings of real-life situations with Plasticine animation.

1981–83 Inspired by the success of *Animated Conversations*, Channel 4 commissions a similar series called *Conversation Pieces*.

1983 More animators join Aardman: Barry Purves, previously of Cosgrove Hall, and graphic artist Richard Goleszowski.

1985 Aardman completes various TV ads, including the Scotch Videotape skeleton.

1985 Nick Park joins Aardman to finish *A Grand Day Out*, which he'd started at the National Film and Television School.

1986 Aardman creates extensive animation for the pop video of Peter Gabriel's single *Sledgehammer*.

1989 *A Grand Day Out* – which introduces the world to Wallace and Gromit – is released and is nominated for an Academy Award.

1989 Channel 4 commissions the *Lip Synch* series, again using real-life conversations but with a wider remit for more imaginative animation. For the series, Goleszowski creates *Ident*, while Nick Park finishes *Creature Comforts*.

1990 *Creature Comforts* earns Nick Park his first Academy Award for Best Animated Short film. The characters go on to star in a series of TV commercials.

1991 Richard Goleszowski creates *Rex the Runt*, adapting a character from his film *Ident*. It eventually becomes a TV series.

1993 *The Wrong Trousers*, the next film featuring Wallace and Gromit, is released. It wins an Academy Award.

1995 *A Close Shave*, third of the *W&G* films, is released bagging yet another Academy Award.

Mid-90s Aardman enters a major deal with Dreamworks PDI to produce five full-length feature films. *Chicken Run* is the first to be announced.

1997 *Softimage*, running on SGI machines, is introduced at Aardman.

1999 Aardman switches to *Maya*.

2000 *Chicken Run* is released, directed by Peter Lord and Nick Park. It is the first major Aardman film to feature CGI.

2001 *The Deadline*, co-created by Stefan Marjoram exclusively in CGI, wins Best Short at the 3D Awards.

2002 The first CGI technical director is appointed.

2003 *Creature Comforts* series one broadcast on ITV, and later nominated for a BAFTA.

2004 Production starts on *Wallace & Gromit* feature film and second *Creature Comforts*

With three films under their belt, three Oscars for creator Nick Park, and a feature film in production, Wallace and Gromit look unstoppable.

A Close Shave © Aardman/Wallace & Gromit 1995

techniques. Such diversity within one studio ensures that Aardman can grow creatively as well as commercially.

And grow it did. In the early 90s, it was almost impossible to escape Aardman, whether on TV, videos or commercials. Nick Park soon followed up *A Grand Day Out* with *The Wrong Trousers*, which was even more wildly successful than its predecessor. Both *Trousers* and the third film, *A Close Shave*, earned Park Academy Awards for Best Animated Short film, while practically turning Wallace and Gromit into an industry of their own.

Almost inevitably, Hollywood came calling. Aardman signed a major deal with Dreamworks PDI to produce five full-length feature films, prompting fears of selling-out and a drop in quality. Yet Aardman's dedication to the nuances of animation won through in *Chicken Run*, the first feature released in 2000. Although it 'starred' Mel Gibson, it bore all the trademarks of a Nick Park film and was largely produced using the same painstaking stop-motion techniques Aardman has always employed. Nevertheless, something had arrived which the company could no longer ignore: CGI.

Creative comforts

As recently as 1997, the CGI team at Aardman consisted of *Softimage* and "two guys in a corner with no mandate, initial goals or even infrastructure." Nowadays, there's a staff of around 20 solely dedicated to computer animation, and even in this new medium, Aardman is winning awards. The bulk of CGI work, however, is reserved for ads, which demand a great deal of animation in a short space of time.

Stefan Marjoram joined the company as a CGI animator in 2000 and almost immediately won a 3D Award as co-creator

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"CGI enables us to do warm character stuff as well as shiny rockets"

of *The Deadline*. "I'm not sure that we've affected Aardman's traditional style but I do think we have added to it," he says. "Some jobs would previously not have been possible with traditional techniques. That said, we approach CG with a goal to making something that has the same warmth, charm and attention to detail that the animation and model work has."

Some pundits assumed the rise of CGI would be a threat to Aardman's traditional style – and to some extent, this was actually the case. "It was a little difficult to start with," Stefan admits. "I think some people were worried that we would make them redundant or not be able to recreate the charm of the traditional work. But that was mainly due to people not understanding the process and not realising that we were artists too – not just computer operator boffins."

The release of *The Deadline*, with its distinctive Aardman-esque humour and superb characterisation, helped change that perception. Indeed, he says, "we've even had some of the traditional animators switch sides and join the CG department! We have no interest at all in trying to emulate Plasticine animation – we already have a studio full of the best clay animators in the business." Any resemblance between the output of the two departments, he believes, is simply because the CG section applies the same trusted animation rules that work so well in Aardman's traditional films.

The two wildly differing mediums sit side by side in the studios, and Stefan often works with the model makers, "either because we need a live action set or perhaps some maquettes building." Occasionally a 'traditional' director will take on a CG commercial, which can be difficult at first if they don't fully understand the medium.

"Working like this makes the job a bit more of a challenge, but you often end up with something more interesting as it's perhaps not the kind of thing that someone would have tried in CG before," says Stefan. "I think they can be surprised – not necessarily at what CGI can do, but that it can be made to do warm character stuff as well as shiny rockets."

With longer series ideas and perhaps another short in the pipeline, Aardman Animations appears to have met the challenge of CGI and incorporated it as just another way to express their ideas. The company may be best known for its more commercial work – as over 250 international awards and three Academy Awards clearly testify – but underneath it all, the spirit of those two boys mucking about with chalk still remains. ca-p

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© Channel Four Television Co Ltd 1983

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(Top) *The Deadline* was one of Aardman's first CG films, co-created by Stefan Marjoram.

(Left, top) You really don't want to be Angry Kid's little sister.

(Left, middle) *On Probation*, from Aardman's *Conversation Pieces* series.

(Left, bottom) More from the recent *Creature Comforts* series.

Create stop-motion movies

Presenting the easiest way to create Aardman-style animations, with only your DV cam and some plasticine...

Aardman, as you probably know from the feature preceding this tutorial, is responsible for some of the best stop-motion animation in the business. Whether you look at *Morph*, *Wallace and Gromit* or *Creature Comforts*, the quality of movement and expression is second-to-none, and the precision in technique unrivalled.

You would think that you'd need high-end software to achieve this kind of effect – but in fact, all you need is an idea, a whole lot of patience, a DV cam and a copy of Boinx Software's *iStopMotion*. You'll find a 21-day, fully-functioning demo on your cover CD, and to get it working, you'll need a licence. See the licence details box on the right.

iStopMotion is extremely easy to use, as the following tutorial demonstrates. All you need to do is make sure you set up your scene in a place where light will be consistent (unless you want a time-lapse effect) and make sure your camera is on a steady surface (or ideally a tripod). Next, get yourself down to the local art shop, or Early Learning Centre, and buy some plasticine. You can use all the animation techniques throughout this issue to make your character move realistically...

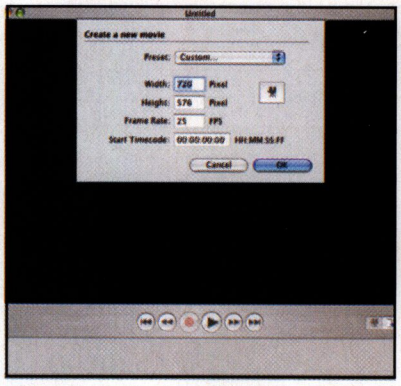
On your cover CD you'll find a 21-day, fully-functioning demo of *iStopMotion*, which will give you the chance to experiment with the software. The app requires a licence file, which you can get from going to **[w] http://www.boinx.com/computerarts/** and entering your details. The licence will expire after seven days but you can request it three times...

Part 1: Starting your stop-motion animation

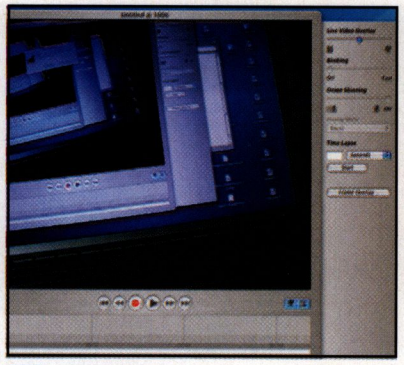
Set up *iStopMotion* to behave exactly how you want it to, and then capture your first frames...

Keep it steady

When making any sort of stop-motion animation, it's extremely important that you keep your camera steady. Ideally, get hold of a tripod or, at the very least, a solid table or raised stack of books. Remember to keep lighting consistent as well.



1 Open *iStopMotion* and choose the preset PAL option (720x576). If you haven't requested a licence, you'll only be able to create a movie at 320x240. Make sure the framerate is set to 25 frames per second.

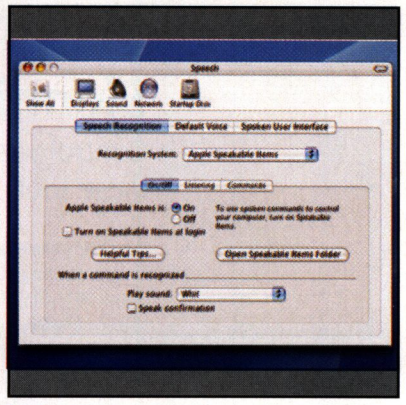


2 If you haven't done so already, hook up your DV cam to your Mac. *iStopMotion* supports any camcorder compatible with *QuickTime*. Click the 'enable live video' button below the main viewer window. In the Options drawer, move the Live Video Overlay slider all the way to the right.

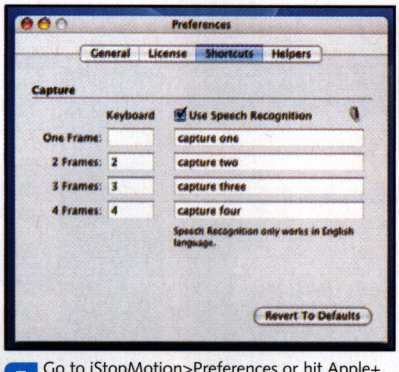
3 Live video should now be feeding into *iStopMotion*, and you're ready to begin recording your film on a frame-by-frame basis. Position your model in front of the camera and capture a frame by hitting the spacebar.

4 Stop-motion animation is all about minuscule adjustments. Remember, your movie's framerate is 25fps, meaning that you'll need to capture 25 frames for every second of action. Making adjustments that are too large will result in clunky and unrealistic movement.

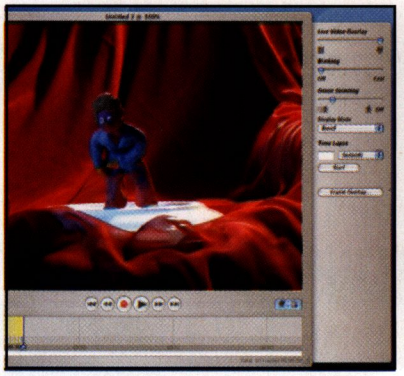
5 *iStopMotion* enables you to capture more than one frame at once – up to four, in fact. You can use the default keyboard shortcuts of space, 2, 3 and 4, but if you're working on your own, and don't have a laptop, *iStopMotion* has another trick up its sleeve.



6 This is speech recognition. First, you'll need to turn on Speech Recognition in Mac OS X system preferences. Go to the Apple Menu, choose System Preferences and then click on Speech and turn on Speakable Items.



7 Go to iStopMotion>Preferences or hit Apple+, (comma). Choose the Shortcuts tab. Check the Use Speech Recognition box and enter the commands you wish to use. The default Capture One, Two, Three, and so on will usually suffice. You can also change your keyboard shortcuts at this time. Close the Preferences window and make sure your main Mac volume is turned up.



8 Back in the main *iStopMotion* app, adjust your model a slight amount and say "Capture One" at a volume you feel comfortable with (obviously if you're quite a way from the Mac, you'll need to say it louder). If the capture was successful, you'll hear a shutter sound and you're ready to adjust your model again.

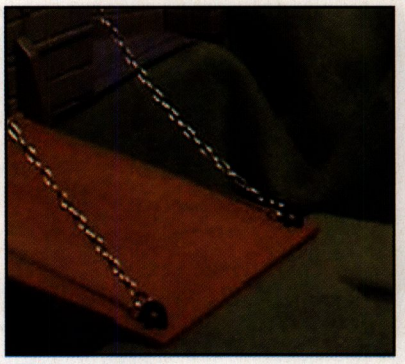
9 Continue to capture frames until you have 25 – one second of footage. It's not really worth previewing your movie, though you could skip through the frames in slow-motion using the arrow keys to get an idea of the motion. To really create stunning animations, you'll need to use video overlay, blinking and onion skinning...

Part 2: Getting under the skin

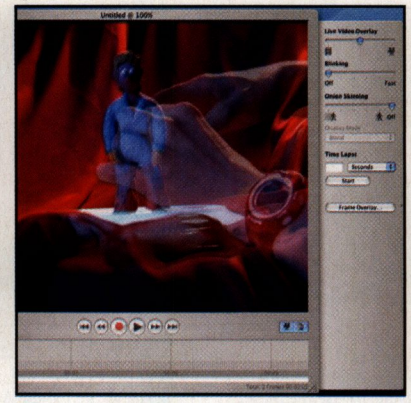
Going in-depth with *iStopMotion's* Video Overlay, Blinking and Onion Skinning tools...

Filter Effects

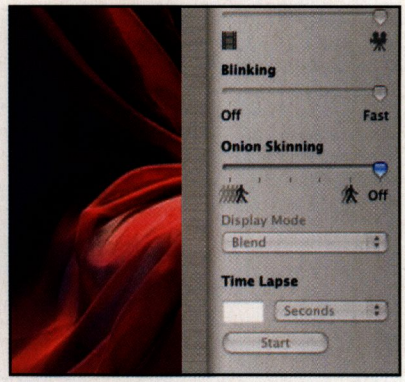
Why not set up a batch filter action in *Photoshop* to automatically apply a filter effect to each and every frame in your movie... After exporting your frames and saving them in a folder, simply create an action in *Photoshop* and run the action on the whole lot using the File>Automate command.



1 If the Options drawer isn't already open, hit the icon to the right of the Video Overlay button beneath the main viewer window (or hit Apple+Option+O). Find the Live Video Overlay slider, and position it halfway between the two icons. Notice how you can now see an overlay of live video, while still seeing the previously captured frame.



2 This feature comes in extremely handy when you need to remove your model from its position to alter a mouth shape, pupil direction and so on. It helps you to place your model back in the exact same position, as well as judge the movement within the next frame more accurately.



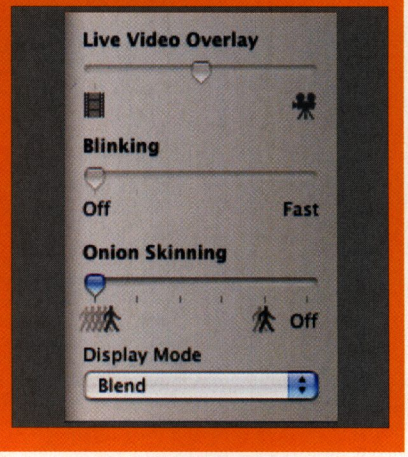
3 A similar helper tool is the Onion Skinning feature. Move the slider all the way to the left and choose the final frame in your animation. Notice how you can now see the last five frames inside the current frame. This gives you an idea of how your character will move without manually scrubbing through the frames.

Skinning and Blinking settings

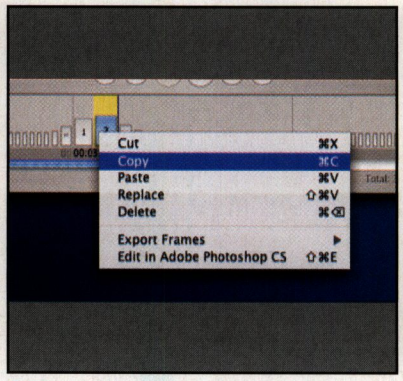
Control your animated character more effectively with these tools in *iStopMotion*...

The Onion Skinning slider in *iStopMotion* has five settings, enabling you to see up to five frames. Sliding it back will decrease the number of previous frames visible. Below the Onion Skinning slider lies a drop-down set to Blend by default. The Minimum and Maximum options enable you to see previous frames without any transparency – the minimum mode shows dark pixels more clearly, while the Maximum mode is best used with lighter objects on a dark background.

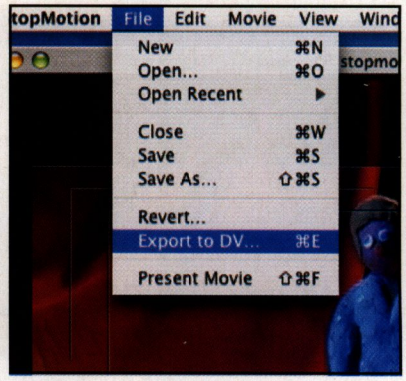
The Blinking function is just as useful. This basically displays the camera preview and current viewed frame in rapid alteration in the main viewer window. Using the slider, regulate the speed of the blinking until you get the idea of how the frame-to-frame sequence will look. This stroboscopic effect helps your brain to imagine the sequence.



4 The Frame Overlay button is the next option on the list, and this enables you to display various 'safe areas' as you work. Hit the button and you get the option to toggle 16:9 Preview, Title Safe area and Action Safe area (the latter for DVD production).



5 Continue to move your model and capture frames, either one, two, three or four at a time. Using the magnified timeline running along the bottom of the interface, cut, copy and replace in order to gain a smooth animation.



6 When you're happy with your creation, go to File>Present Movie to see a full-screen preview of your animation on a black background. You can export the animation to DV format if you have the DV licence – simply go to File>Export to DV.

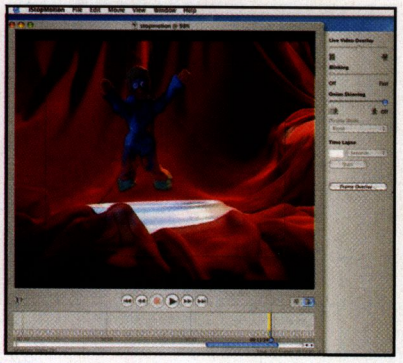
Part 3: Completing your movie

Take your animation to the next level using other applications...

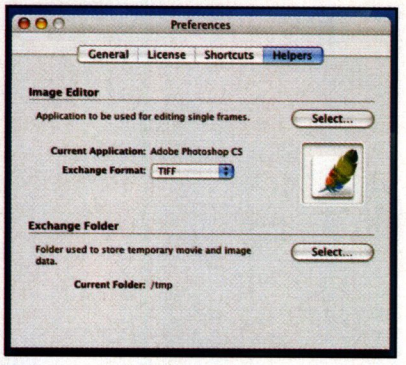
Compression

iStopMotion exports each frame as an uncompressed TIFF file, meaning that if you want to import a sequence of frames into *Flash* for use in an SWF project, it's probably best to run an optimisation action on the folder of frames first.

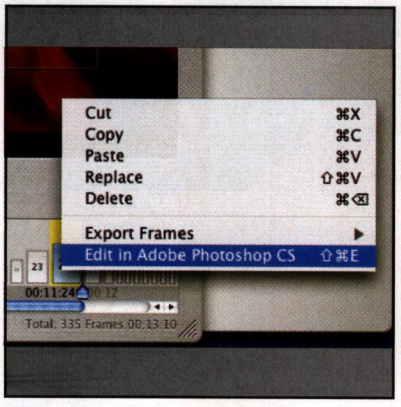
1 So now you have your finished stop-motion animation. If you've exported it as DV, you can import it into a non-linear editing application such as *iMovie* or *Final Cut Express/Pro* for adding titles and other elements.



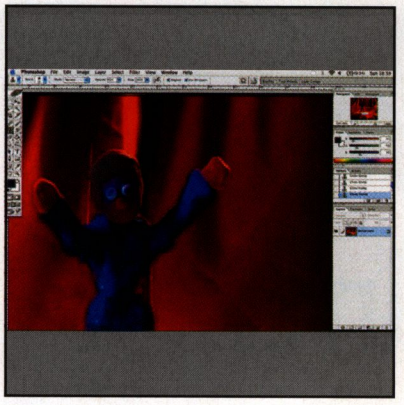
2 Before we do this though, we can clean up the individual frames in *Photoshop*. Why would we want to do this? Well, in one part of our movie, the character jumps into the air. This is all executed using the high-tech medium of string, but we need to remove the strings to make it look authentic.



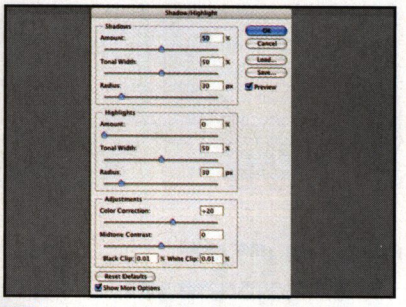
3 Luckily, *iStopMotion* features a nifty roundtrip editing function. Open up the Preferences window and choose the Helpers tab. In the Image Editor section of the interface, hit Select and browse to your image-editing app on your hard drive (in this case, *Photoshop*).



4 Navigate to the frame, or indeed frames, where your strings are visible. On each frame, Ctrl-click and choose Edit in Adobe Photoshop CS (or whichever application you specified in the previous step).

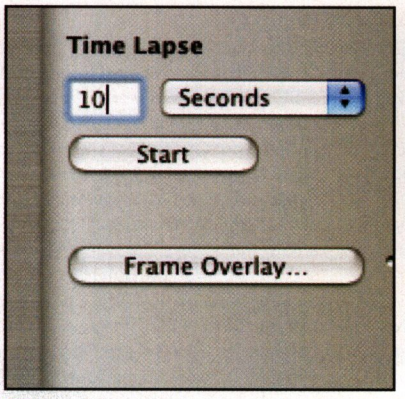


5 In *Photoshop*, using the Clone Stamp and the Brush tool, carefully disguise the strings on each frame. The great thing is, all you have to do is save your images and *iStopMotion* will automatically update with the edited frame(s).

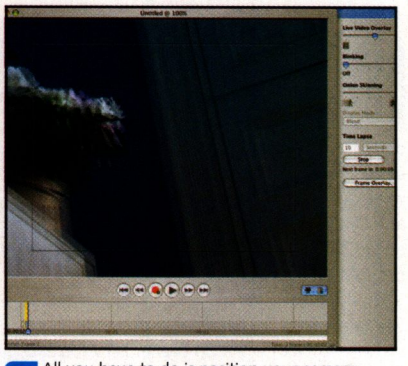


6 Bear in mind that it's not just wires that you can correct in *Photoshop*. If your lighting changes for some reason between frames, you can adjust it, and you could even, if you have the patience, individually edit the appearance of each frame using Shadow/Highlight or similar (if you don't have an NLE). You can export all of your frames individually by selecting them all in the timeline and Ctrl-clicking and choosing the Export Frames option.

7 If you have *iLife* installed on your Mac, you can import the DV file generated from *iStopMotion* directly into *iMovie*, add titles and video effects, and add a royalty-free soundtrack using *GarageBand*. Here we've applied an old film and sepia effect to our movie. Then we can export it to tape or save it out for use on the Web.



8 As well as enabling you to create stop-motion animation, *iStopMotion* is capable of time-lapse movies. These are basically movies that capture a frame at regular intervals (specified by you) over a long period of time. Creating time-lapse effects in *iStopMotion* is simple... .



9 All you have to do is position your camera so it points on an area that's likely to change over a certain amount of time (maybe a flower, or even a street outside your window). Specify the Time Lapse amount in seconds – that is, how many seconds between each frame capture – and hit Start. Now wait for a few hours or so (or even longer), hit stop and export your movie. **ca>p**

Triffic Films

This 2D animation studio is now part of the UK comedy scene. ***"I'm lucky to be working with top comedy talent. I appreciate their craft, and I think they appreciate mine,"*** says Tim Searle...

Triffic Films has seen more comedians pass through its Stony Stratford studio than you'd see at the Edinburgh Festival. The 2D animation company has caricatured everyone from Tony Blair to Posh Spice – even Lassie. And it has brought the best UK comedy writers to a cartoon-watching audience on BBC, ITV and Channel 4 – from the primetime *Spitting Image*-style *2DTV* to the forthcoming *I Am Not An Animal*, a production due to air on BBC2 in May.

Tim Searle founded Triffic in 1989, creating sketches, graphics and title sequences for comedy shows – including *Ah So Graham Norton* and *Have I Got News For You*. "The whole digital thing empowered us to get into narrative work, which is when I decided to collaborate with comedy writers."

When we meet Tim Searle, he's just arrived back from the BBC2 launch party for *I Am Not An Animal*. Searle and his 34-strong team are in the thick of finishing this project, a Baby Cow Production with Steve Coogan and Henry Normal. Triffic is also working on series four of *2DTV* and titles for *The Catherine Tate Show*. *I Am Not An Animal* is a six-parter about the plight of six talking animals, raised in a laboratory on good food, fine wine and celebrity magazines, then brutally liberated into the wild by animal rights activists. You'll recognise their voices – among them Steve Coogan and Simon Pegg (*Spaced*).

"I've been working with Henry Normal for about six years, and we used to sit in his back garden storyboarding stuff," Tim explains. "He and Steve Coogan introduced me to Peter Baynham (*I'm Alan Partridge*) to work up this idea he had about talking animals. I'm lucky to be working with top comedy talent. I appreciate their craft, and I think they appreciate mine."

The Triffic craft is traditional animation skills – "an understanding of timing, weight distribution and acting" – combined with desktop digital-production methods. The toolset is *Flash, Photoshop, Illustrator, LightWave, After Effects* and *Speed Razor* – plus an application Searle talks emphatically about: *CelAction 2D* (**[w]** www.celaction.com).

Getting it right

"The conventional path for long-form animation is to take it to storyboard and layout locally, then sub the animation out to cheaper markets overseas," explains Tim. "But for us, the animation part is too important to give to someone else. Our animators have similar cultural references to me; they 'get it', and comedy is easy to get wrong. *CelAction* enables us to create in the UK without killing the budget. It enabled us to make *I Am Not An Animal* and *2DTV*, where subtle acting is the key."

Triffic formed 2DTV Ltd with writer Georgia Pritchett (*Smack The Pony, Have I Got News For You*),

1. These exclusive stills are from *I Am Not An Animal*, a six-part animated comedy produced by Triffic Films with Steve Coogan and Henry Normal. It will be shown in May on BBC, and features the only six talking animals in the world – a horse, cat, sparrow, monkey, rat and dog – who have been given the power of rational speech and thought in a secret laboratory. Pampered and clothed, they are then released to the cruel outside world, and left to fend for themselves in a remote farmhouse...

The furry fugitives in *I Am Not An Animal* were animated using *CelAction 2D* – the same tool Triffic Films used for *2DTV*. "This is one of the best systems we've found for producing a 2D series animation," says Tim. "The user interface is animator-friendly; it's made for serious series work, and that's what we use it for."

2. These stills are from *Rolf's Animal Hairdressers*, produced as part of Channel 4's Comedy Lab series. Influenced by the economic cartoons of the 60s and 70s, such as *Top Cat* and *The Pink Panther*, it took this style a step further using the 2D animation tool *CelAction 2D*. Rolf's is a typical high-street salon, except that it's full of animals – and, unlike *Top Cat*, they have a distinctly adult attitude...

3. This image is from Triffic's four-part series *Dominion*, shown during Channel 4's Animation Week. Roger Avery, a regular guy, is on his way home after a night out and is abducted by aliens, who take him to Dominion: an intergalactic Brussels that's home to alien ambassadors from every planet. He's lost in space, light years from home...

4. Title sequence shots from *Gimmie Gimmie Gimmie*. "Title sequences are a great discipline and challenge," says Tim Searle. "You've got to introduce a programme in 20 or 30 seconds, somehow get the gist across in that time, and you often get loads of freedom – it's up to you what techniques you use. I enjoy making them."

5. "Executive Producer Joanna Beresford joined us after the first short series, and now heads up 2DTV Ltd," explains founder of Triffic Films, Tim Searle. "At the moment, there are 21 of us working on it. Pablo Bach is our caricaturist. He worked on *Spitting Image* sculpting the heads, and has a great skill in capturing the essence of a person." Series 4 of *2DTV* is almost ready to be shown on ITV.

For more information about Triffic Films, **[e]** info@triffic.co.uk or go to **[w]** www.triffic.co.uk

and shortly afterwards, ITV commissioned a pilot. "Producer and cartoonist Giles Pilbrow, who I'd worked with on *Spitting Image*, approached me with the idea," says Tim. "I was making *Rolf's Animal Hairdressers*, a C4 Comedy Lab project and our first in *CelAction 2D* – we were realising the potential of the software, moving away from what I saw as a crude cut-out look toward something with a sophisticated joint system and replacement-shape lip-sync.

"Before a series of *2DTV* we have weeks of making generic material and building up our character library. During the transmission weeks it's full-on, with nine minutes of a 23-minute show being made in the four days up to transmission day! We work long hours, but the adrenaline rush sees you through."

Famous fans

Being approached with ideas is something Triffic is used to, but when someone as famous as George Michael knocks on the door, announcing he's a *2DTV* fan, it's more of a surprise... "He asked us to make the promo for *Shoot The Dog* in three weeks," explains Tim. "It was a real laugh. George was cool, and happy to have the mickey taken out of him in the animation. He's very bright and gave irritatingly well-observed notes. He told us that Elton John's a big *2DTV* fan too!" See the promo at **[w]** www.georgemichael.com.

With a tonne of projects in the pipeline, it looks like being a while before Tim Searle takes time off for one of his much-loved VW Campervan trips. Before leaving him to get back to *I Am Not An Animal*, we ask him if he has one piece of advice for anyone entering the industry. "Running a business requires mule-like stubborn determination and blind vision. Listen to clients. Get it into your head that the project is the most important thing in the world to you. Deliver on time." ca-p

TUTORIAL: GETTING EMOTIONAL

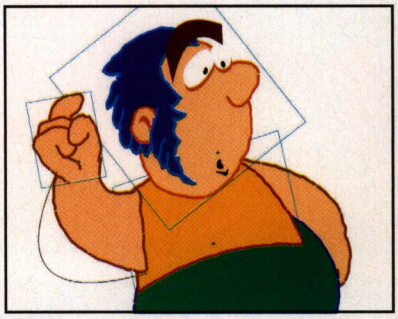
Follow Triffic Films' guidelines to animating emotions in *Flash*...

Do what you will with your own emotions (express them or repress them), but when it comes to your characters, it's your job to make them as tangible as possible. The clearer your characters' emotions, the more the audience will connect with them. So how do you make emotions clear and readable to an audience? Simply base them in reality.

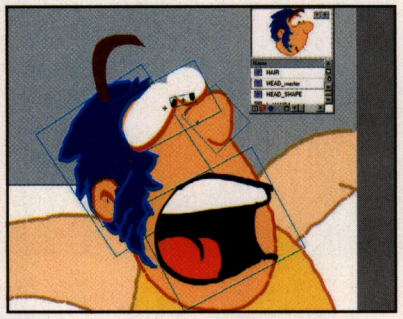
The following tutorial will help you to transfer your observations into *Flash* and out to your viewers. It will give you guidelines for setting up your character's facial expressions, and it'll take you through the process of planning and animating an emotional reaction.

Part 1: Planning your reactions

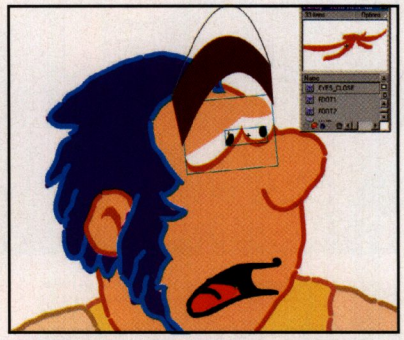
Triffic Films shares some tips for setting up a character who's in touch with their emotions...



1 Use a mix of solid symbols, which can be moved around 'cut-out' style, and flexible vector shapes for the limbs. Leaving them as vectors enables you to create nice curves (the segmented, cut-out look is fine for the body because it's more easily hidden). Extra hands can be drawn as needed.



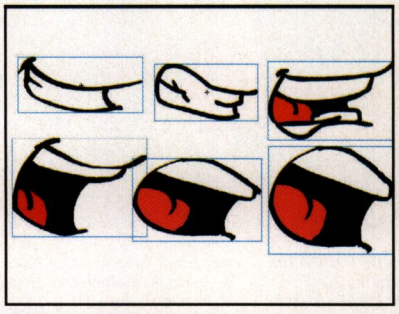
2 Make the head a separate symbol. This way you can animate the main body movement first, and the facial expressions second. Build up a library of facial expressions and use the Instance menu to make the head display the appropriate look within your scene.



3 Eyebrows are important for dictating emotional states. Like the arms and legs, this eyebrow remains a vector shape for ease of manipulation. Create a range of replacement eye shapes: half-closed, squinty, and so on.

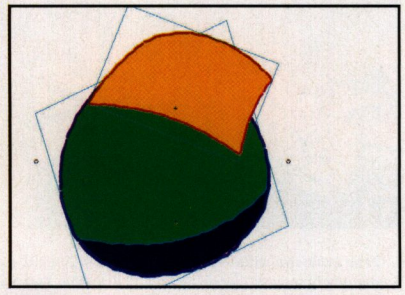
Look at yourself

Think in terms of emotions having a kinetic energy, which needs to be released either in an almighty punch or an elaborate bout of fidgeting. The fun of animating is discovering new ways of expression. No amount of analysing 'joy' will match you standing in front of a mirror, getting happy and seeing what happens. Animators will usually have a mirror on their desk for this purpose.



4 Make sure you have plenty of mouths available, either symbols or shapes. Clenched teeth, wide smiles, confused pouts – the more available the better. Having a mirror on your desk will give you ideas for most of the shapes you need.

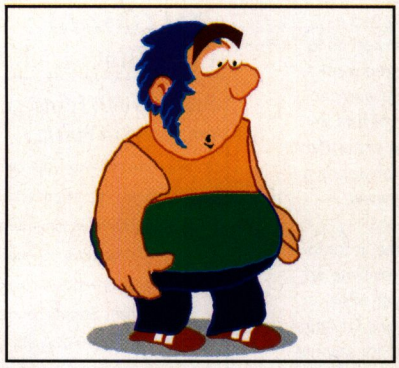
5 In an exaggerated expression, the eyes, eyebrows and mouth sometimes take over the face. They are separate objects here so they can move out of the road and create a bit of space if necessary. The head has been left as a shape so it can be stretched to fit a wider mouth.



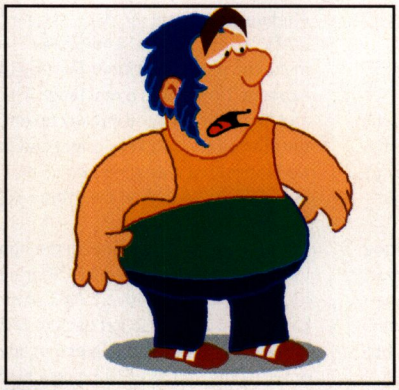
6 The body is divided into two shapes: upper and lower body. Each part can be scaled, stretched, overlapped or flipped independently, which means a good range of 'lines of action' can be formed. Think of the 'line of action' as a single line, running from head to foot down the character's spine.

Part 2: Building a crybaby

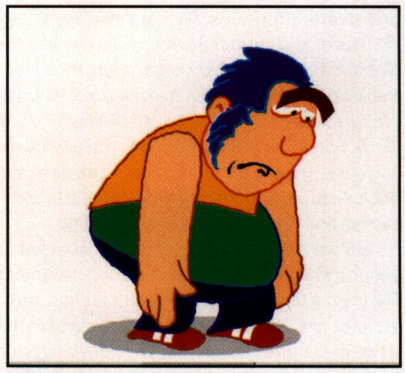
Any animated sequence needs its keyframes to start...



1 Keep things as simple as possible. Find a starting point from which the action can take place. Think of balance, a nice stance, comfortable arms, and so on. The audience will react to changes in emotional state, so a neutral facial and body expression leaves plenty of room to grow.



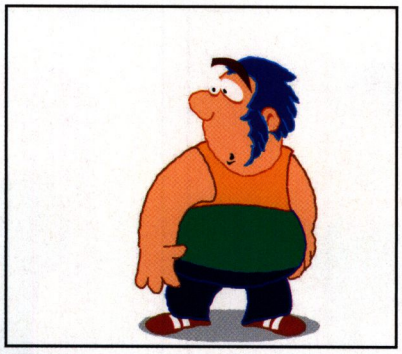
2 This is your second keyframe pose. The character draws in a breath to be released as a sigh. The eyebrows have curved and the legs have straightened, raising the body up, and a sad droopy-eye shape has replaced the wide-open shape.



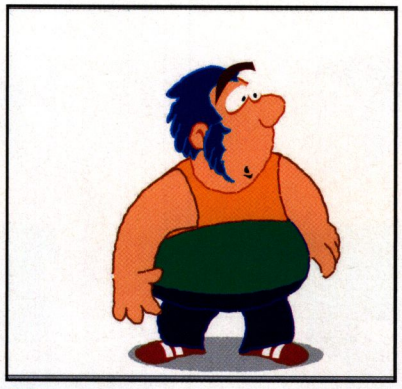
3 The final keyframe: a hopeless, dejected slump. These are your main keyframes then. Experiment with their timing and do preview after preview until you're happy with the result. Now you can go in and set up the in-between poses to create a smooth flow between the keyframes.

Part 3: Surprise!

Showing a character reacting to a surprise is a good way of capturing the audience's full attention...



1 Try to think in terms of stimulus/response for this part. A surprise is an event of sufficient suddenness that it jolts our mind out of daydream mode and into full-alert survival mode. This 'call to arms' of our awareness produces some amazing reactions in the body. But first, let's start with something nice and sedate.



2 The event has just happened. Like dipping your toes in hot water, there is a gap between the stimulus and response. Treatment of this pose can add humour to your acting – for example, a longer hold will suggest a fairly rudimentary intellect.

3 The mind has decided that this event requires the body's full attention, so it gets it by sending a jolt of energy to all its bits. It's trying to send it all at once though, so we get this compressed, grimacing pose as it all builds up in the hips.

Subtle tweening

Flash animation often suffers from motion-tween sickness. Replacing actual keyframe poses with motion tweening results in replacing stylistic, dynamic acting with clunky, robotic acting. As these sequences demonstrate, the bodies do not move all at once. Some parts lead and some are dragged, some stretch and some are squashed. If used at all, try to limit tweening to slow ins or slow outs of a movement and avoid using it for facial expressions.

4 Here's the release. The pent up energy shoots out of the hips and down the legs, thrusting the character into the air. The hips lead the movement; the body just drags behind. The head is stretched to imitate a drawn pose. This is where having the head as a symbol comes in handy.

5 Now the face reacts. The eyes enlarge because the brow is in an extreme arc and is quite a distance from the eyes. However, the most important feature is the contrast of this facial expression to the previous one.

6 The body comes back to the ground. The pupils will stay focused on the source of the surprise throughout. Again, the hips are the first to drop with the rest of the body trailing. There is a slight stretch on the leading foot.

Learn from the experts

You don't have to re-invent the wheel. Borrow or steal poses from your favourite actors, animated or otherwise. You'll learn some amazing things with the freeze-frame button. You can't beat Homer for sheer intensity of emotional reactions. Pixar is excellent at switching from emotion to emotion in one line of dialogue. George Costanza has some brilliant suppressed emotional states, which are sometimes more fun to animate than the real thing.

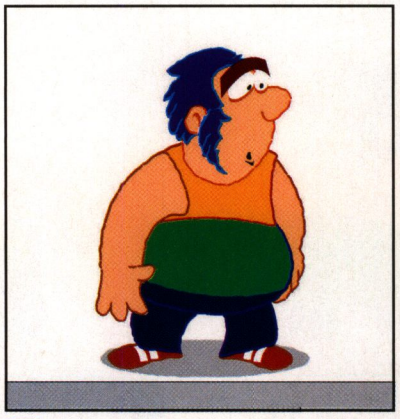
7 Then there's the impact. Usually the eyes will shut again. Notice the stretch on the head – both the head and the arms are still falling.

8 The release of energy after the surprise has shot the character away from the source so his balance must be regained.

9 The character is now fully alert and ready to deal with what has happened, yet he's still a way off figuring out what *has* actually happened – hence the guarded, defensive stance.

Part 4: Expressing anger

It's time to let off some steam and break a few teeth...



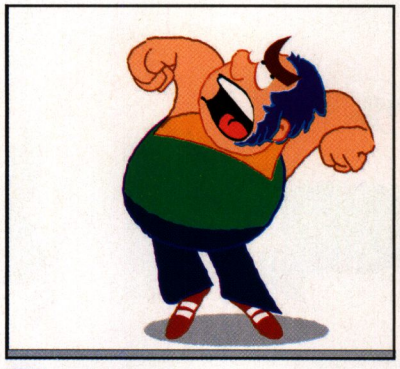
1 Emotions arise, have their moment and then pass away, so start with a nice neutral pose. Again, the objective here is to exaggerate reality. We're constantly shifting from one emotional state to the next in real life, so endeavour to take your characters on the same ride.

2 This is the start of a wind-up of energy that reaches its peak at Step 4. Anger is great fun to animate – most of us grow up with a negative attitude towards expressing anger fully, resulting in attempts to contain it when it arises. Such attempts are usually unsuccessful, resulting in all sorts of crazy gestures.

3 Fists are clenched, mouths grimaced, and eyes shut tight. Our character vainly hopes that shutting out the cause of the anger will make the feeling disappear. Trying to contain this amount of anger causes the body to rise. It can go no further than here though – this anger's now got to go one way or the other.

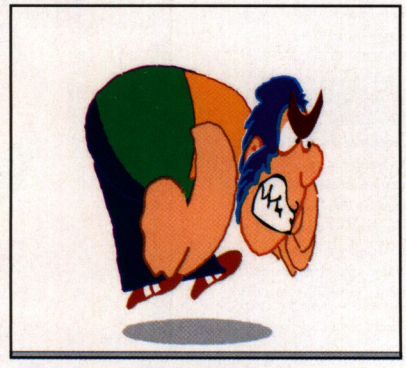
Controlling emotions

To keep an element of reality in your animation remember that we humans try to control our emotional reactions for various reasons – adults more so than children. A happy child will burst into a little dance, but an adult will be more reserved. Our efforts to contain or divert the energy released by our emotions range from mildly successful to spectacular failures, but they always add some kind of extra peculiarity to our gestures.

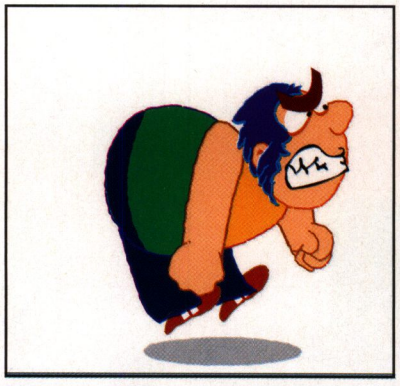


4 Looks like its coming out then... The eyes have clocked the target of the imminent release. The arms and body rise up even higher in anticipation and the first wave of energy comes out as a scream. The remaining few poses will be the release of this pent-up energy.

5 Much like the surprise pose, the mind is redirecting the energy outwards. It is these 'in-between' poses that will give the snap and the life to your animation. Identify which part of the body is leading the movement (in this instance, the head) and let everything else trail behind.

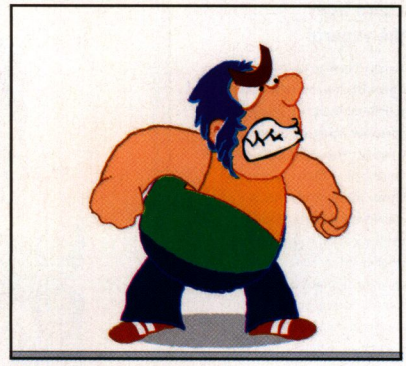


6 The body 'pops' up. The teeth have taken on a very pointed canine feel. Once again, identify exactly what is doing the moving. Here the legs have shot the hips into the air, and again, the rest follows, giving that nice curve on the back and arms and the stretch on the head and legs.



7 This curve then 'snaps' to its opposite. This type of quick snap between contrasting lines of action will give your animation a dynamic, impressive feel.

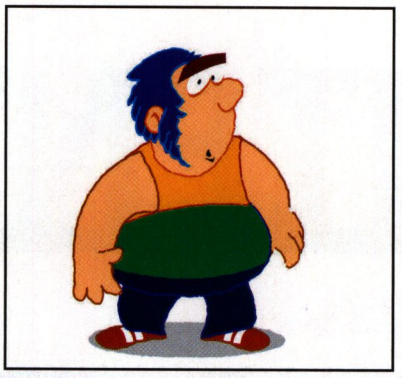
8 The character hits the ground again setting him up for the next pose, which will be the final angry stance. Get some nice bent knees to give that feeling of weight coming down. In this type of landing pose, keeping balance is usually a priority, so get the stance wide and the arms out.



9 This is the final angry pose, oozing aggression. The fists are still clenched, the arms and chest splayed out in an attempt to make himself look bigger. The eyes have enlarged, the teeth are exposed and there's a classic angry eyebrow shape.

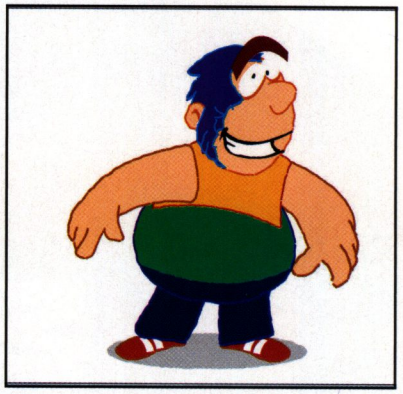
Part 5: Feeling happy

And finally, after experiencing a range of emotions, there's a happy ending...



1 While fear may cause the body to contract and shy away, happiness will usually be expressed as an expansion or attraction towards the apparent source of the feeling. Again, emphasise the changing emotional states of your character. Take him from a sedate pose, such as this one, and make him become happy.

2 This 'squash' pose serves the same purpose as it does in the surprised and the angry sequences. The mind has told the body that it's happy, so pleasant feelings are about to shoot around it. This is the initial surge of energy.



3 The character is about to step forward to get closer to the thing making him happy. So he's shifting his weight to his left leg and the arms are coming up to keep balance. Notice the 'pop' in facial expression from the previous frame. The eyes are wide and the eyebrow has leapt up.

Listen to your character

If dialogue is being used, it will be the best guide for planning your character's actions. Listen to it line by line and get a feel for the actor's delivery, noting the high and low points. An animator will play a single line over and over, while acting along with it until two or three keyframe poses have been worked out. These poses, which hit on certain words, then become the 'skeleton' of the sequence. For example, Steps 1, 4, 7 and 9 are the key poses for the 'Happy' sequence here.

4 All his weight is now on one leg and the other has shot forward – the slightly bent knee along with the drop in the body illustrates this shift. The foot is scaled up and the leg pulled out wide at the bottom to give perspective. His right arm is now back, to counteract the right leg being forward.

5 He's coming forward. The weight is now evenly distributed between his feet again. Notice that the head has flipped. Don't be afraid to give it a good flipping every now and then, but try to disguise it a bit by making it part of a fairly drastic body movement.

6 This is another of those lovely in-between poses. They create such a nice flow between keyframe poses. Remember, do these after you've created the previous and next pose. Here, the body has been scaled up and the head stretched. He is about to snap into the strong happy pose.

Emotional reactions

Emotional energy flows all over the body, through the limbs and around the hips creating both subtle and drastic changes in posture. It pops the body up and squashes it to the ground, grimaces the mouth and widens the eyes. It bubbles up then explodes out, or explodes out and bubbles away. We can get carried away by our emotions, so make sure your characters do the same.

7 This is a fun keyframe. The character has now lunged forward and is clearly impressed. That big open mouth and the wide eyes really communicate this. Keep an eye on how his weight changes from leg to leg.

8 With the appropriate scaling he has stepped forward, attracted towards the object of his affection. Notice the scaling took place gradually over a series of poses – first foot, then leg, then stomach, then head, and so on.

9 And at the end of a string of mixed emotions, our character lived happily ever after. ca-p

SECTION THREE: CARTOONS AND ANIMATION FOR FILM

CONTENTS

p74 PROFILE: Sony Imageworks

The company responsible for *Stuart Little*, *Spiderman* and more recently *The Chubbchubbs* and *Early Bloomer* on its inspirations, working practices and animation challenges.

p78 TUTORIAL: Facial modelling and animation

Learn how to realistically portray the human face, along with all its emotions in 3D with this exclusive excerpt from Sybex. Check out our fantastic offer on page 82, in which you can save 30 per cent on *Stop Staring: Facial Modeling and Animation Done Right*.

p84 PROFILE: Framestore CFC

Responsible for the CG effects on some of the most celebrated movies in recent times, including the *Harry Potter* trilogy, Framestore CFC is also the company behind the monstrous TV hit *Walking with Dinosaurs*.

p86 TUTORIAL: Character animation in Cinema 4D

Learn how to rig and animate a character using Maxon's *Cinema 4D* – expert tutorial and all the files you need on the CD.

p90 FEATURE: Get a job in animation!

So, you now have the ideas, skills and inspiration to work on feature animations, but how do you go about getting a job in what is a notoriously tough industry? We talk to some of the best animators in the business to find out.

p94 REFERENCE: The world's top animation companies

Want to send your showreel and CV to an animation company? Hand-picked by *Computer Arts Projects*, here are 20 of the best...

ANIMATING FOR THE BIG SCREEN

Since *Toy Story* from Pixar back in 1995, the world of computer animated feature-length films has been on a high. *Antz, A Bug's Life* and *Shrek* all hit the box office with great presence, proving that computer-generated imagery as a medium for film is no longer on the sidelines in Hollywood.

Animation in film is largely dominated by those producing 3D visuals and effects, and we've teamed up with some of the best 3D animators to bring you interviews, tutorials and features that will help your skills develop and your ideas come to life.

First up, there's Sony Imageworks – a company that has worked on such movies as *Spiderman* (as well as the forthcoming sequel), provided the likeable mouse Stuart Little in the eponymous film and is about to release *Early Bloomer* to the world. See page 74 for more. Then we have an exclusive excerpt from Sybex's *Stop Staring: Facial Modeling and Animation Done Right*. This will give you a grounding in making your 3D characters act human – one of the hardest tasks a 3D animator faces.

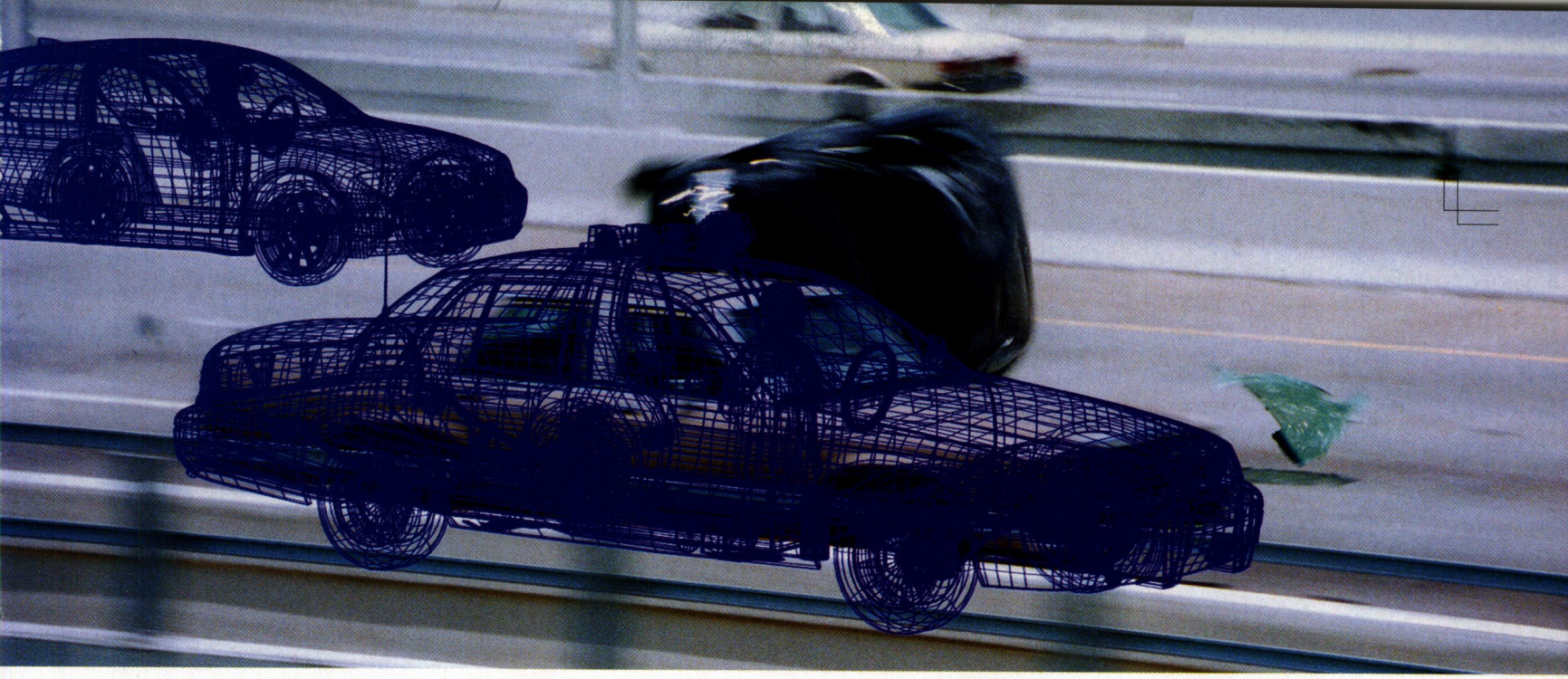
If you ever wondered how the effects in the *Harry Potter* films were created, turn to page 84 for some insight from legendary animation house Framestore CFC, then create an animated character in *Cinema 4D*, starting on page 86.

Once you're up-to-date with all the techniques and you have ideas buzzing around your head, go get a job – we show you how with our feature beginning on page 90.

ANIMATION FOR THE BIG SCREEN

One of the world's premier VFX houses for over a decade, Sony Pictures Imageworks is on the cusp of a major shift in emphasis as its first feature-length animation enters production. We look at what the company has achieved so far and what it's got lined up for the future…

Below: A breakthrough production for Imageworks, *Stuart Little* and its sequel proved that the studio was more than capable of producing winning character animation which pushed the boundaries of technical achievement.



Sony Pictures Imageworks has been producing cutting-edge digital animation since 1992, leading the way in terms of both style and technical accomplishment. Movies such as *Stuart Little*, *Spiderman* and *The Matrix Reloaded* have all helped to establish Imageworks as a major industry player.

Following the Oscar-winning success of its first animated short, *The Chubbchubbs* in 2003, production is now under way on *Open Season*, the first full-length feature from Sony Pictures Animation. It's hoped that this project will set Imageworks on the path to becoming a major player in the world of feature animation.

At its base in Culver City, California, Imageworks has built up a 500-strong body of digital professionals with all the skills and experience required to produce feature-length animated movies. Much work has also gone into developing proprietary software and a production pipeline which is flexible enough to handle more than one type of project.

Striding the corridors of Sony's huge, purpose-built production facility are VFX luminaries such as John '*Spiderman*' Dykstra, Rob '*Titanic*' Legato and Jay Redd, the man behind the incredible interstellar opening sequence of the film *Contact*. It's the pedigree of this talent that Sony hopes will lead to the kind of box office bonanza which has greeted every one of Pixar's features.

Animation transformation

Sony had been planning to sell Imageworks until, having seen the impressive quality achieved for the animated sequences of *Spiderman 2*, executives of the VFX company gave the go-ahead to transform the company into a CGI animation house, which in time they hope will rival the likes of Pixar and Dreamworks.

Interestingly, rumours that Sony was planning a $4.1 billion takeover bid for Pixar caused that company's stock to jump by over 2 per cent in February. Neither company is talking, but a merger seems unlikely given Steve Jobs' controlling stake in Pixar. However, if Sony ups its offer, anything's possible.

Stuart Little was a breakthrough project for Imageworks, demonstrating that it could deliver photoreal character animation with the ability to charm the box office. For John Dykstra, Senior Visual Effects Supervisor, the task was simple: "If you don't empathise with Stuart, we haven't done our job." Luckily the orphaned mouse was taken to heart by the cinema-going public.

Almost all of Imageworks' projects to date have been high-quality VFX for live-action

Far-left and above: Although shifting gear to begin production of feature-length animations, Imageworks will maintain its busy schedule of live action VFX production. This shot from *Bad Boyz II* demonstrates the team's capacity to produce seamless effects for blockbusting productions.

Below: The Chubbchubbs was a five-and-a-half minute short, following the attempts of the mild-mannered Meeper to warn regulars at the Ale-E-Inn of an imminent invasion. The story caught the attention of studio executives and finally came to public attention when it accompanied *Men In Black 2* at the cinema.

In production: Early Bloomer

A tale of tadpoles finding their feet helps Sony decide the future of its VFX division...

Having started life as a training exercise, *Early Bloomer* (pictured below-right) quickly became a serious venture as Kevin Johnson and producer Sande Scoredos pulled together the efforts of the multitude of technical staff contributing to the production.

Guiding the development of the project took some doing as Kevin explains: "With animation it's good to have a script, but even more important is to have a storyreel or animatic so you can see how your characters play out and what technical obstacles you may have to overcome." Producing a detailed animatic helped Kevin marshal the work of his contributors and keep the project on target: "This storyreel is the map of how you will reach your objectives – without it, projects can easily become derailed."

Set underwater, using characters dependent on their features alone to express the full range of emotion, the film wasn't short on technical issues: "Sometimes you just don't have the ability to achieve certain actions or looks and if these actions or looks are crucial to telling the story, you may have to find a way around it. So in that sense, technology can affect the story and how you tell it."

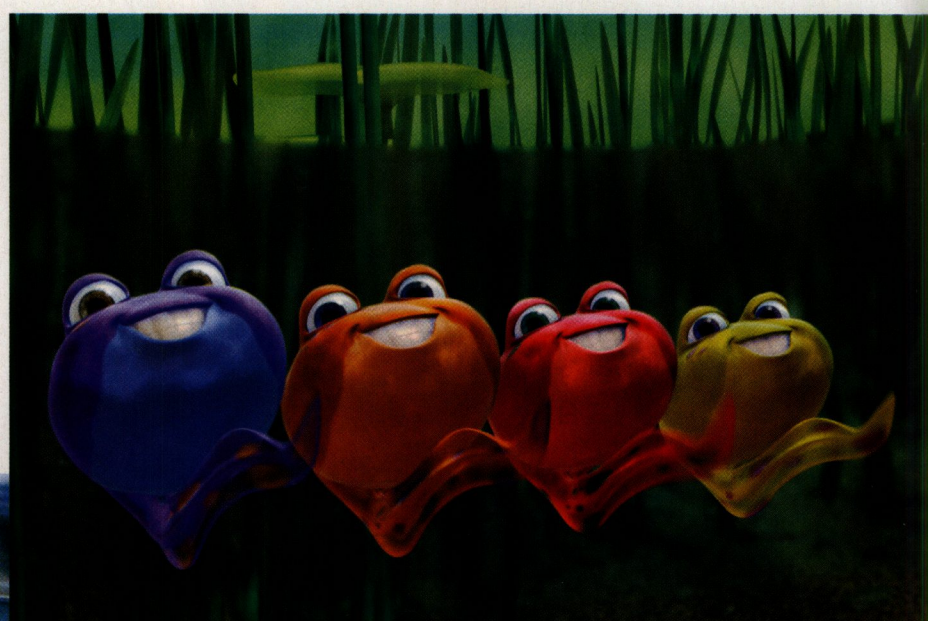
Testing the Imageworks pipeline has turned out a pair of stunning animated shorts. If the new Sony Pictures Animation keeps up this high standard, then Sony could become a major force in feature-length animation.

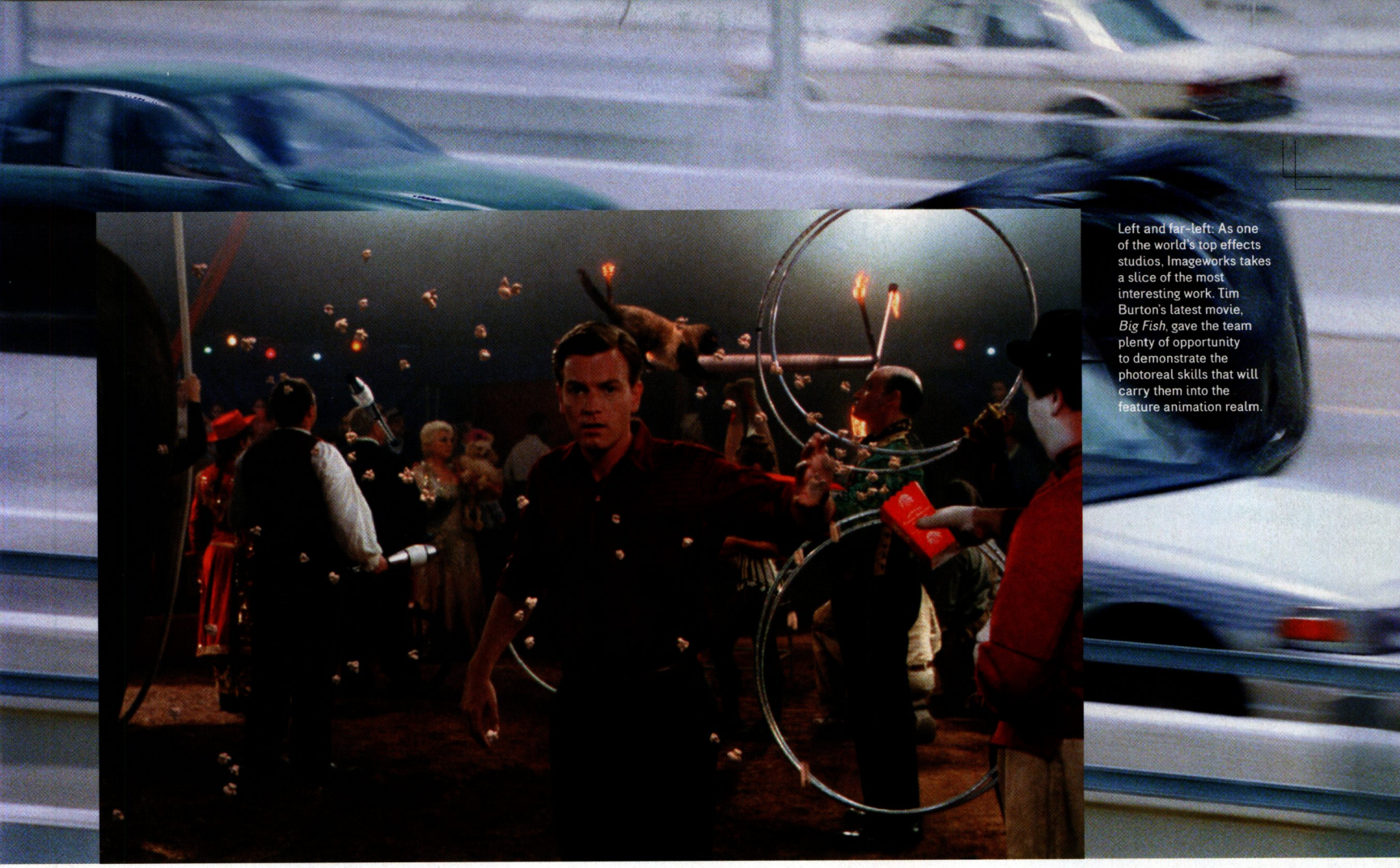
movies. It was therefore unknown whether the company was capable of running a fully CG pipeline in tandem with its staple effects work. Testing this dual pipeline became a priority and in 2002 that process bore its first fruit in the shape of Eric Armstrong's short *The Chubbchubbs* and, in 2003, Kevin Johnson's *Early Bloomer*.

Tim Sarnoff, President of Imageworks explains the purpose of the two shorts as a test-ground for the company's animation pipeline: "We needed to see if we could produce an animated feature and create FX for live action at the same time." Screened along with *Men In Black 2*, *The Chubbchubbs* was an instant hit. Repeating this strategy, *Early Bloomer* accompanied Eddie Murphy's recent hit *Daddy Daycare* to similarly positive reviews.

Early developments

Kevin Johnson is the creator and director of *Early Bloomer*, a project initially not intended for audiences outside Imageworks' own employees. He explains how the film came to be produced: "It started through the training





Left and far-left: As one of the world's top effects studios, Imageworks takes a slice of the most interesting work. Tim Burton's latest movie, *Big Fish*, gave the team plenty of opportunity to demonstrate the photoreal skills that will carry them into the feature animation realm.

department where I taught a class on performance and story. I had a storyreel that a few people in the class saw and asked if they could animate it as part of their training. That was how the film began."

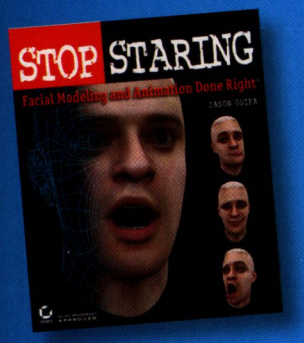
Tim Sarnoff spotted the potential of the story and had it promoted to production status. Although the story is a simple tale of tadpoles growing up, the underwater setting and the characters' large expressive features presented a number of technical challenges to the team. While these were overcome with a combination of Imageworks' proprietary facial animation tools and *Renderman 11*, Kevin says the major challenges were logistical: "The biggest technical issue was communication and scene hook-ups. This may not sound technical, but we didn't have room for mistakes so we had to devise an editorial system that the animators could drop their work into and see if things were hooking up properly."

Coming up

Sony Pictures Animation has scheduled *Open Season* for release in 2006 and in the meantime the studio continues to produce its VFX work unabated.

Spiderman 2 is set to be a smash this summer and the studio's character animation talents will again be on display when the Robert Zemeckis epic, *The Polar Express*, pulls up at the Christmas box office. Sony has decided to make its mark on the world of feature animation and there's nothing anyone can do to stop it trying to achieve this goal. Given that analysts are predicting a period of consolidation, this is a very interesting development indeed. ca-p

Below-left and middle: Following hot on the heels of the Oscar-winning *The Chubbchubbs*, *Early Bloomer* tells of the trials faced by a tadpole on the turn. Director Kevin Johnson explains the appeal of the short: "*Early Bloomer* is aimed at anyone who has felt different or excluded from the norm at some point in their life."
Below-right: Expect more technical heroics in *Spiderman 2* this summer.



Stop Staring!

Create expressive, lip-synced faces with the help of these extracts from Jason Osipa's *Stop Staring: Facial Modelling and Animation Done Right.* Find more extracts from this book on your cover CD...

Getting to know the face...

Before we start animating, building, or rigging anything, let's be sure we're speaking the same language. In Chapter 1, I talk about talking, pointing out the things that are important in speech visually and showing how to ignore the things that aren't. Narrowing our focus to lip sync gives a good base from which to build the more complicated aspects of the work later. In Chapter 2, I define and outline, in the same focused way, the top half of the face. (You'll find Chapter 2 on your cover CD.)

CHAPTER 1:

Learning the basics of Lip Sync

I love this stuff. When more than a few people told me I should write a book about my approach to facial animation, I started to take note. They saw how I took something so complex, so daunting, so evil, and made it so easy, simple, and — dare I say it? — *fun!* The trick is the implementation: the building techniques to make sure the mouth can get into all sorts of shapes convincingly and to have those shapes interact with each other attractively. In modeling for facial animation, mix and match is the name of the game. Instead of building individual specialized shapes for every phoneme and expression, we'll build shapes that are broader in their application and use combinations of those to create all those other specialized shapes. On the animation front, it's all about interface, and maximum control for minimum effort. You want to spend your time being creative and animating, not fighting with the complexities that can emerge from having a face with great range. It doesn't sound like there's much to these concepts for modeling and animating, and, yeah, they really are small and simple — but they're huge in their details, so let's get into them.

Before we can jump into re-creating the things we see and understand on faces, we first need to figure out what those are. Starting on the ground floor, we're going to break down the essentials of lip sync and learn the only absolutes. Next, I'll go into how basic speech can be broken into two simple and basic cycles of movement, which is what makes the sync portion of this book so simple. Finally, at the end of this chapter, I take those two things — what's essential and the two cycles — and actually build them into a technique for working.

- **The bare-bones essentials of lip sync**
- **The two speech cycles**
- **Starting with what's most important: visimes**
- **Building the simplest sync**

The Essentials of Lip Sync

People overcomplicate things. It's easy to assume that anything that looks good must also be complex. In the world of 3D animation, where programs are packed with mile after mile of options, tools, and dialog boxes, overcomplication can be an especially easy trap to fall into. Not using every feature available to you is a good start in refining any technique in 3D, and not always using the recommended tools is when you're really advancing and thinking outside the box. Many programs have controls and systems geared for facial animation, but those same programs usually have better tools in their arsenals for the job.

If you've ever tried lip sync in CGI, it has probably been frustrating, complicated, difficult, and unrewarding. By the end of it, most people are just glad to see it get done and regret deciding to involve sync in their project. Another approach currently being explored is facial motion capture or automated sync. Neither of these looks very good or has much artistic flair — yet.

Don't despair; I will get you set up for sync quickly and painlessly so you can spend your time on performance (the fun stuff!). If your bag is automation, there's still a lot of information on how to bump the quality up a couple of notches on that, too.

The lip sync portion of facial animation is the easiest to understand, because it's the simplest. You see, people's mouths don't do that much during speech. Things like smiles and frowns and all sorts of neat gooey faces are cool, and we'll get to them later, but for now we're just talking sync. Plain old speech. Deadpan and emotionless and, well, boring, is where our base will be. Now, you're thinking, "Hey! My face can do all sorts of stuff! I don't want to do boring animation!" You're right, your face *can* do all sorts of things, and who would ever want to do boring animation? For the basics, however, we're not going to complicate it yet — that'll come later. In a very short while, in Part II, we'll build a model of a mouth that can do anything your mouth can do, and more, but you need all this stuff in your head before you can get there.

When dealing with the bare-bones essentials of lip sync and studying people, we've whittled it down to two basic motions. The mouth goes closed/open, and it goes narrow/wide; all of these are illustrated in Figure 1.1.

Figure 1.1
A human mouth in the four basic poses.

That's really, at its core, all that speech entails. If we were lip-syncing a character with a plain circle for a mouth (and we will in just a minute!), the shapes in Figure 1.2 would be all the keys we would need to create the illusion of speech.

Your reaction to this very short list might be, "What about things like F where I bite my lip, or L where I roll up my tongue?" That's just the point of these early chapters. We ignore those unique and complicated shapes, strip the process down to what is absolutely necessary to be understood visually, and then build it back up from a solid base. If these two controls — Open/Closed and Wide/Narrow — are all you have to draw on, you get creative about how to utilize them. Things like F just get pared back to "sort-of closed." If you were to animate this way and stop the animation on the frame where the "sort of closed" is standing in for an F and say "That's not an F!" you'd be right, but in motion, you hardly notice, and what we're talking about here is motion. As a standard in this book, I'm going to try not to concern us with the individual frames, so much as the motion and the impression it gives.

Animating lip sync is all smoke and mirrors. What is *really* happening isn't relevant; it's all about the impression. How about M? "I need to roll my lips in together to say M; I can't do that with a circle-mouth-thingamajig." Sure you can, or at least you can give that same impression — just close it all the way; that's good enough. When you get the lip sync good enough and focus on the acting, people only notice the acting. The sync becomes visual noise!

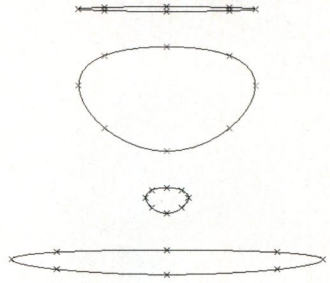


Figure 1.2:
A circular spline mouth in the same four basic poses.

Analyzing the Right Things

Let me take you on a little real-world tutorial of what's important, and what's not, in action. There can be a tendency to slow things down to the frame-by-frame level and analyze in detail what happens so that we can re-create it as animators. Here's an example:

Look in the mirror (or don't) and slowly, deliberately, and clearly enunciate the word *pebble:* PEH-BULL. We're trying to see just what exactly happens visually, on our face and lips, during that word, so we can re-create it in animation. Think about or watch what your lips are doing — all the details: The little puff in your cheek after the B. The way the pursing of your lips for P is different than for B. How your tongue starts its way to the roof of your mouth early in the B sound and stays there until after the end of the word. All these details gives you a pretty good idea of how to analyze and re-create the word *pebble* in animation, right? Wrong! That's exactly the wrong way to do it. That's how you would do it for a character who was speaking slowly and deliberately, and enunciating clearly. This is how a mirror can be dangerous if used incorrectly: over-analysis. None of these things, these details, are wrong — they're just not necessary, and I'll explain why in the next paragraph.

This time, at regular, comfortable, conversational speed, say "How far do you think this pebble would go if I threw it?" How did the word *pebble* look? Check it out a few times, resisting the urge to do it slowly. As far as the word pebble is concerned, the overall visual impression is merely closed, a little open, closed, a little open. That's it. In a sentence spoken regularly, the word *pebble* will most likely look the same as *mama* or *papa*. Say the phrase again with that in mind. Try not to change what your mouth does, but instead notice that the Opens and the Closeds are the most significant things happening during the word. The mouth doesn't open wide enough (in this case) to see a tongue, so why would you animate it or need to spend time thinking about it? Because it's "correct"? That would be like animating a character's innards. You can't see them, but they're there, so animating them would be the "correct" thing to do, right? Wrong. It's a silly waste of the time you could otherwise spend on the acting.

The Opens and the Closeds are the most important of any of the things a mouth does. That's why puppets work. Does it look like a puppet is really *saying* anything? Of course not, but with the flapping of the jaw happening around the same time as the sounds the actor makes, your brain fills in the connection. You want to believe that the character is talking, and that's why the only truly important action in the word *pebble* is open, closed, open, closed.

This is how you analyze the right things: search for the overall impression, not the details. It's very easy to learn how to do this, but very hard to master.

Speech Cycles

This approach of identifying cycles and "visimes," which you'll learn more about in just a moment, is likely very different than what you know now. If you're looking for a phoneme-to-picture comparison chart, you're not going to get it here, because in this approach there is no absolute shape for each sound, and to point you in such a direction would do more harm than good. Each sound's shape is going to be unique, and you'll learn to identify it and its components. To start, let's talk about the two speech cycles.

In its simplest form, there are two distinct and separate cycles in speech: open and closed, as in jaw movement, and narrow and wide, as in lip movement.

When I say "cycle," I'm merely referring to how the shape will go from one to the other and then back again. There are no other stops along the way. The mouth will go open, closed, open, closed; the lips will go wide, narrow, wide, narrow.

These two cycles don't necessarily occur at the same times as each other, nor do they go all the way back and forth from one extreme to the other all the time. The open and closed motion generally lines up with the puppet motion of the jaw, or flow of air — *almost any* sound being created — while the narrow and wide motions have more to do with the *kind* of sound being created. In the phrase "Why are we watching you?" we get this sequence for the Wide/Narrow:

Figure 1.3: **All varieties of G.**

Word	Wide/Narrow Sequence
why	Narrow, wide
are	No change/shape
we	Narrow, wide
watching	Narrow, slightly wide
you	Narrow

Simple, right? Now let's look at the jaw or Open/Closed cycle. "Rest" refers to a position not completely closed, but closer to closed than to open.

Word	Open/Closed Sequence
why	Closed, open, closed
are	Closed, open, closed
we	Closed, slightly open
watching	Closed, open, closed, slightly open, closed
you	Closed / no change

That's it for the essentials. We're going to get into more shapes and controls and special cases, but there it is. The backbone of this book's lip sync technique has to do with simple analysis of the Wide/Narrow and Open/Closed cycles; over time, we'll add more and more levels, each one simple on its own, to create complex, believable performances.

These cycles will be the foundation on which we build everything else. Taking the lead from the human mouth, I've based all of this book on the "simpler is better" mindset. Your mouth is lazy. Go on, admit it. It hits the major sounds and fudges over the rest, like someone whose name you forgot but say hi to anyway, hoping they don't notice you garbled it. It makes good sense; it's efficient.

I've had programs and books and teachers all show me sets of shape keys for sync I had to build, that included things like G. Why would we build a shape for or pay special attention to the letter G? Whether it's hard G or soft G, you can say it with your mouth in any of the shapes shown in Figure 1.3.

Now, these are obviously all pretty different. If you were, however, to try and say a soft or hard G with your mouth held in each of these poses, you could do it without much trouble. In 95% of cases when the letter G comes up in sync, we're going to ignore it — that is to say, it will get no keys in the animation. Further to that, we will most certainly not build a shape for G; how would we pick just one?

The G sound is actually created in the throat, not by the lips nor the open/closed positions of the mouth. This whole example with G is to illustrate the criteria of visimes. What are visimes, you ask? Read on.

Starting with What's Most Important: Visimes

So, we've decided that we're going to go with a less-is-more approach. That's good. For this non-inclusive approach, however, where we're trying to exclude all the extraneous mouth positions, something you'll need to know is what *must* be included. There are certain sounds that we make with our mouths that absolutely need to be represented visually, no matter what: visimes. These are the sounds that can only be made by the mouth with specific characteristics to the mouth shape, or range — such as narrow for OO, as in *food*, or closed, for M, as in *mom*. There are more visimes to address than the Open, Closed, Wide, and Narrow can properly do, but even these must-see shapes can be "cheated" to fit into the "circle mouth" setup you've seen and we're about to build.

Why Phonemes Aren't Best for CGI

The most common key sets and setups out there for public consumption are based on *phonemes*, which means "the sounds your mouth makes during speech." To base sync on phonemes seemingly makes perfect sense — it's the way it's been done for years with classical animation — but for the newer world of CGI, it can be overly complicated. Phonemes worked fantastically on paper, where nothing comes for free; every frame must be drawn, and a little popping from frame to frame was just part of the style. In CGI — in anything, really — the eye is drawn to what is out of place, and generally, most computer animations don't have keys on every frame, or even every second frame. If just on the mouth there's a key on every frame of your lip sync, you had better believe that's where all eyes will be; not a good thing.

In the search for a better system for CGI sync, something became very apparent: There are three different *kinds* of sounds you can make during speech, and not all of these are very easy to see! Phonemes-based sync lumps all of these sounds together, and that is what precludes it from being the best solution for us. The important point I'm coming to here is that during speech some sounds are made primarily with your lips, some are made primarily by your tongue, and others are made in your throat and vocal cords. The only ones you absolutely have to worry about every time in animation are the sounds made primarily by the lips.

I say "primarily" because combinations of all these ways to make sound occur all the time. Also, you could argue that your throat makes *all* sounds, but that would be a cerebral standpoint, not an artistic one, like saying we should include the lungs in sync — and believe me, we're not going to be doing that!

Phonemes are sounds, but what matters in animation is what can be seen. Instead of phonemes, of which there are about 38 in English (depending on your reference), what we're going to base our system on is "visual phonemes," or *visimes*. Visimes are the significant shapes or visuals that are made by your lips. Phonemes are sounds; visimes are shapes. They're all you really need to see to be convinced. You obviously cue these shapes based on the sounds you hear, but there aren't nearly as many to be seen as there are heard. The necessary visimes are listed in Table 1.1. Remember that these are shapes tied to sounds, not necessarily collections of letters exactly in the text.

VISIME	EXAMPLE SOUNDS	RULE
B,M,P / Closed	**m**urder, **p**lantation, cher**u**b	Lips closed
EE / Wide	ch**ee**se, m**e**, charit**y**	Wide
F,V	**f**ire, **f**ight, **V**irginia	Lower lip rolled in
OO / Narrow	d**u**de, **u**se, f**oo**l	Narrow
IH	tr**i**p, sn**i**p	Taller or wider than surrounding shapes
R	c**ar**, r**oa**d	Narrower than surrounding shapes
T,S	b**ea**t, **t**raffic	Taller or wider than surrounding shapes

Table 1.1: **Visimes.**

Words are made up of these even if they aren't spelled this way; the word *you* comprises the two visimes EE and then OO, to make the EE-OO sound of the word. As we move forward you'll learn that if there is no exact visime for the sound, we'll merely use the next closest thing. For instance, the sound OH as in M-OH-N (moan) is not really shown on this chart, whereas OO is. They're not really the same, but they're close enough that you can funnel OH over to an OO-type shape.

That's just 7 shapes to hit, and only a few of those are their own unique shape to build! Analysis and breakdown of speech has just gone from 38 sounds to account for, to 7. Some sounds can show up as the same shape, such as UH and AW, which only need to be represented by the jaw opening.

Open Mouth Sounds

So many sounds have no real shape to them, so they're out as visimes. Another group of sounds (Table 1.2) have no shape in the sense that the lips aren't doing anything in particular, but they have the common characteristic that the mouth must be open. I don't consider these visimes but instead refer to them as open or jaw sounds, even though by my own definition, they are visimes. It's a layered reason that takes layered thinking. Visimes as we identify and animate them are really aspects of lip positions, not whole mouth positions. Since the jaw, and therefore the mouth, is open in so many shapes, I've just kicked it out of the visime club because it would make things more difficult, the number of explicit combinations would explode, and you would be back out at phonemes again. Open mouth sounds should be considered separately from visimes.

Example Open Mouth Sounds

SOUND	EXAMPLE SOUNDS
UH	f**u**n, s**o**me, th**u**nder
AH	bl**a**st, b**a**t, V**a**ncouver
OH	sn**ow**, f**oe**
AW	**o**xford, g**o**lly, l**aw**n

Table 1.2:
Example Open Mouth Sounds.

For example, an OH sound (which should be read as a very short OH, not like the word OH, which is broken down to OH-OO) is just a degree of Narrow and some Open — which is really the same as an OO sound, but with different amounts. Instead of referring to sounds as their phonetic spellings, such as OH or AW, I like to break them down further to their components. For me, OH simply becomes a semi-Narrow shape and some Open.

By separating out what's really happening, not just in motion but within each frame, into some basic elements, you can animate faster and better, and more precisely tailor your shape to the sound you hear. This isn't saying to break down the overall content of the sound OH and open it first, and then make it narrow, as in OH-OO, which is how you'd read OH. It's saying to look at only that first part, the OH sound, and figure out what it's made of using the ingredients of Wide, Narrow, Open, and Closed. It's like a trumpet. There are three valves and there's a mouthpiece — that's it. Combinations of these few things can produce varied sounds and beautiful complex melodies, but at its root, it's still just three valves and a mouthpiece.

When we identify visimes, we really are ignoring the open mouth portion of open mouth sounds. After we finish keying and identifying the visimes quickly, we go back to the start and add in the open mouth/jaw motions. By treating these separately, we can move through animations quickly. If your only goal is visimes, you can burn through a long animation very quickly. At the end of that, it doesn't look like much but you are left with a simple version of the lip sync you can then build on, simply by going back and identifying where the jaw must be open.

This approach is much faster than meticulously trying to get every sound right as you move through your animation at one steady pace. This way, you end up with a jumping-off point for finessing. This method applies to any system, not just mine, where you have control over the building-block components of shapes, as opposed to separate and distinct whole-mouth shapes based on phonemes.

Disclaimer: These choices of what is and is not important are based on my own experience. This is not torn from another book, university study, website, or anything else. These aren't even real phonetic representations; they're presented this way because if you're like me, those phonetic alphabet symbols with joined letters and little lines and marks all over them in dictionaries don't mean much.

Visimes Aren't Tied to Individual Sounds

One visime shape can represent several sounds; you might not read the AW in spa and draw with the same letters, but you can represent them with the same visual shape. This is going to give us fewer things to animate and think about as animators, leaving us more time to be performers.

Visimes are the only sounds that have an absolute criteria visually. There's a rule tied to each that we'll cover in further detail in Part 2; for now, if you look at Table 1.1 again you'll see them to the right. To give clearer examples of these rules: You can't say B or M without your lips closed. You can't say OO without your mouth narrow, and so forth.

Now, this isn't to say that for every F sound, you'll need the biggest, gnarliest, lower-lip-chewingest, gum-baringest, spit-flyingest F shape — just that you need to make sure something, anything "F-like," happens in your animation to represent it. That's what visimes are: the representation of the sounds through visuals that match only the necessary aspects. Visimes are not entire poses. F is not a shape, it is part of a shape. The whole shape may be smiling or frowning, wide or narrow, but the lower lip is up, and the upper lip is up, giving us what we need for an F.

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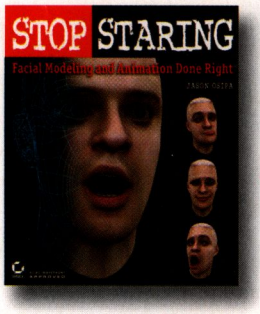

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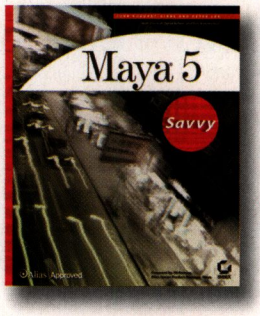

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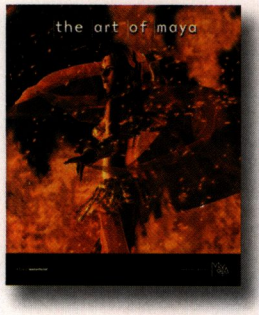

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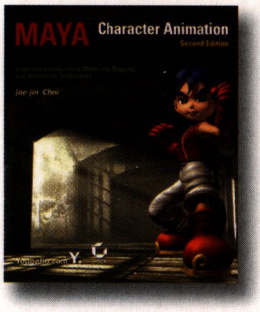

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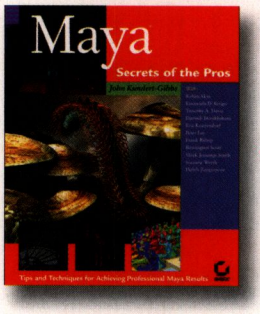

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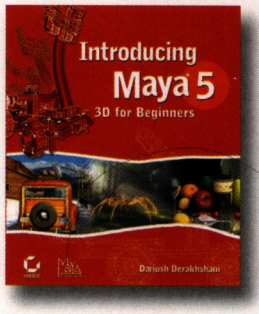

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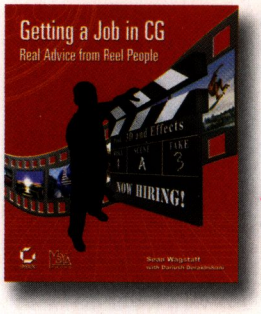

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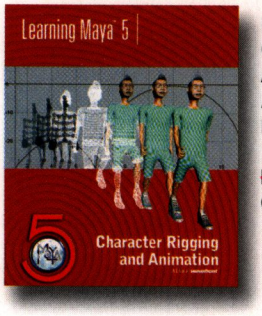

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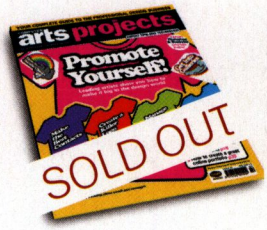

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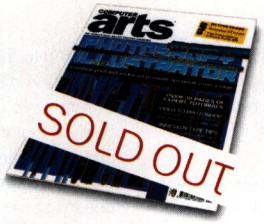

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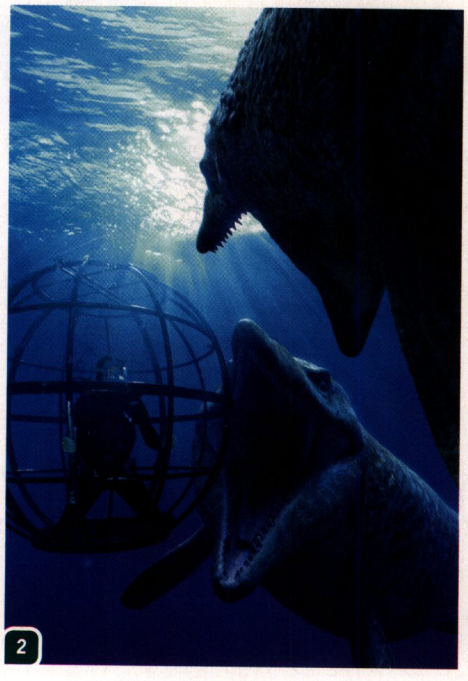
1

Framestore CFC

The animation bigtime started with the creatures in *Walking with Dinosaurs*, but now this principal London post-production house is ramping up its character animation ambitions...



2

Even if the name Framestore CFC doesn't ring any bells, you must have seen the company's animation work. In recent years, *Walking with Dinosaurs, Dinotopia* and *Harry Potter and the Chamber of Secrets* are just some of the productions to have graced screens small and large, around the world. With a long-established background in post-production, character animation is where the company aims to forge ahead.

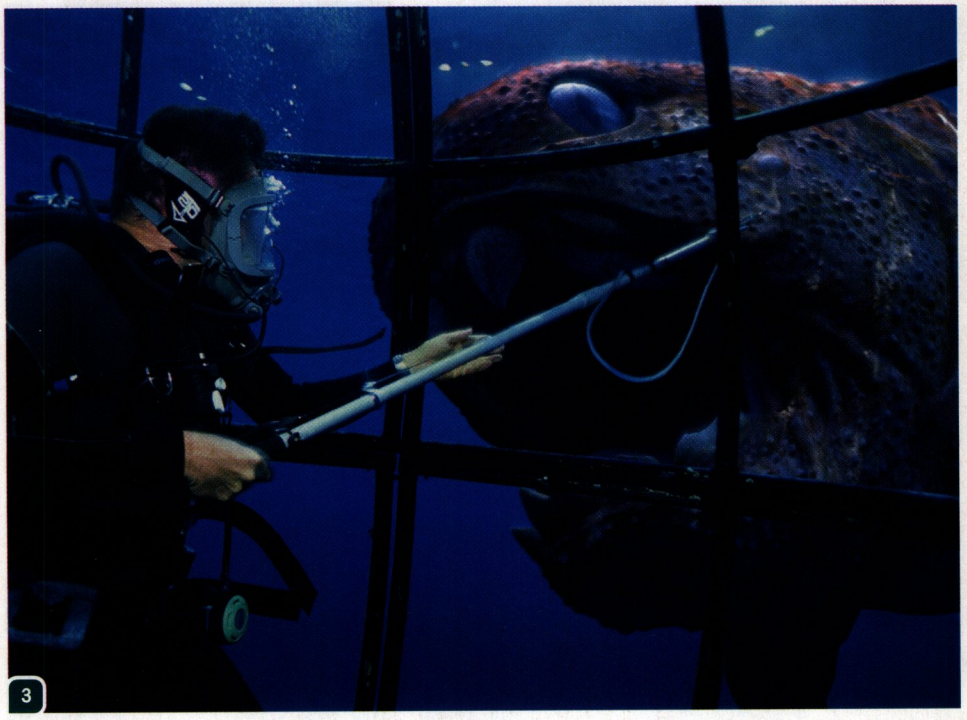
As Animation Director, Michael Eames is developing the character side of the animation department. He's spent the last few years on big projects, back-to-back, including *Dinotopia, The Chamber of Secrets*, and the June release *Harry Potter and the Prisoner of Azkaban*. He envisages a more specialised department where the 3D animators can focus on character and creature animation – an evolution from the traditional role of 3D artists in London who have tended to build 3D models, animate them and even composite them.

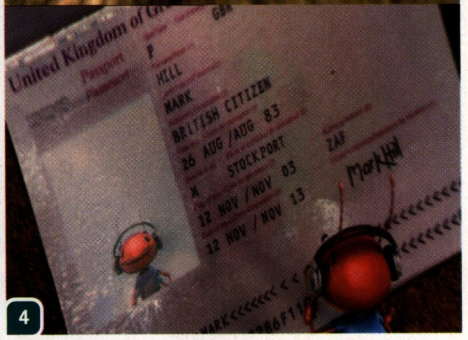
Challenging creatures

The Prisoner of Azkaban threw up some interesting challenges for Eames and his team. The job was to visualise Buckbeak, a hyppogrif with the head and wings of an eagle and the hind quarters of a horse. In addition to making this unbelievable creature, with its feathers and fur, look absolutely believable, the director was pushing for Buckbeak to have a presence beyond that of a mere beast. "In this case you've got a character who's not animated in the same way as a classically animated character," says Eames. "He doesn't speak. There's a very animalistic quality about him, but the brief was we had to put across an attitude too, so in that sense it was a real challenge. Arguably that kind of thing is just as difficult, if not more difficult, to achieve than having a really, obvious, larger-than-life character to rely on."

Not as straightforward, perhaps, as the work Framestore CFC's commercial department turned out with the ants in the Post Office's commercial 'Ice Cream Van'. While these CG ants could be done in a cartoon style reminiscent of Pixar, the creature/character work Eames has been working on seems trickier. He faced similar situations in both *The Chamber of Secrets* and *Dinotopia*.

Framestore CFC's big contribution to the former was the CG animation of the Basilisk. Though some of the shots featured animatronics, others were CG, and although the Basilisk was simply a monster snake whose instinct was to kill, the animation required certain subtleties. "If you want to make anything look





convincing, even if it's just a vicious beast like the Basilisk, you've still got to try and put some sense of brain in there so that the audience can identify with how they think it might be thinking, even if its thoughts are very bland. Even if they amount to 'kill' you've still got to get that in there somehow."

Talking dinosaurs

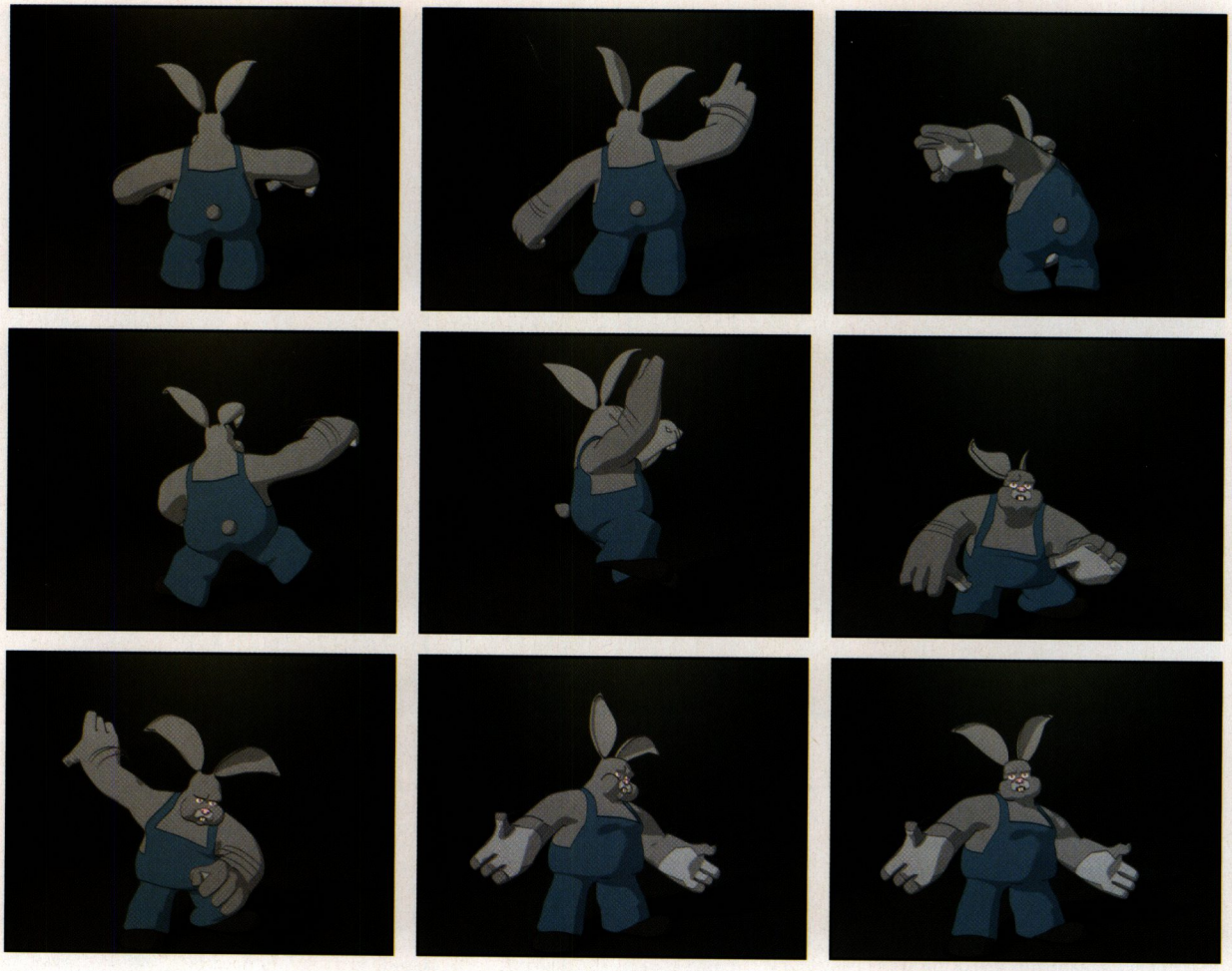
In *Dinotopia*, meanwhile, one of the main characters is the talking dinosaur, Zipeau. This presented an odd kind of cross between the creature work typical of Framestore CFC (the *Walking with...* programmes) and the kind of character work that Eames is developing. For this series, 15 animators were devoted to Zipeau, while another 20–25 worked on non-talking beasts.

"Because Zipeau had a particular character that came through his voice, we found ourselves with a little bit more licence to explore the way he moved and there was something quirky about him. Maybe he could move in a way on screen because he was supported by his character as opposed to the more realistic creatures that we were more limited with."

The distinction between creature and character animator is not so great for Michael Eames. The aspiring animator can progress from creature to character work — and he knows many who prefer the documentary-style creature work. For those looking to break into animation at a company like Framestore CFC, his advice is to first become capable at drawing. "I don't want to rule anybody out because they don't have any drawings, but I think that drawing is a number one skill. You tend to find that people who draw... it's a way of thinking. Like anything you want to do, if you want to do it enough you can achieve it," he says. ca-p

For further information about Framestore CFC call [t] +44 (0)20 7208 2600 or see more of its work at [w] www.framestore-cfc.com

1. The *Dinotopia* mini-series is one of Framestore CFC's biggest animation jobs to date.
2 & 3. *Sea Monsters* involved underwater prehistoric creature animation, which has become a speciality of Mike Milne's CGI team at Framestore CFC, as opposed to the character-led work headed up by Animation Director Michael Eames.
4. Produced in Framestore CFC's commercial department, this advertisement for the Post Office's services is a short example of a cartoon-based character animation style.
5. Zipeau, from *Dinotopia*, started off pretty much as an anatomically correct dinosaur, but much licence was taken by the animators to give him an onscreen character.
6. The Guinness squirrel – perfectly believable down to the last whisker until it picks up a pint to drink, at which point character animation techniques turn it from an animal into a character.



Character creation in Cinema 4D

Rig, animate and render a cel-shaded cartoon character in *Cinema 4D* using the Mocca and Sketch and Toon modules...

Non-photorealistic animations, particularly cel-shaded ones, have become very popular in the industry over the last few years. From Saturday morning cartoons to the latest feature films, it seems everyone is trying to get characters that both move and look like traditionally drawn figures.

With the release of *Cinema 4D 8.5* all this is now possible, with modules like Sketch and Toon, and Mocca as well as the new support for the .fbx format making it relatively simple for the intermediate user to make their own animated films.

In the following tutorial, we're going to show you how to set up a rig using Hard IK, Soft IK, FK, and some driven keys, truly covering each type of skeletal animation available within *Cinema 4D*. We'll then demonstrate how to animate your character using this set-up and render it out in a cel-shaded style using a feature-quality line style.

The final .c4d Bubba files created in this tutorial can be found on the cover CD in the Software\Tutorials\In The Mag\Cinema 4D folder.

Expertise provided by Kai Pedersen. Kai teaches animation throughout Northern Alberta, Canada. He's worked on productions such as *Catching Kringle* and *Junction Valley*. **[e]** kai@edaug.org, **[w]** www.lucentdreams.net

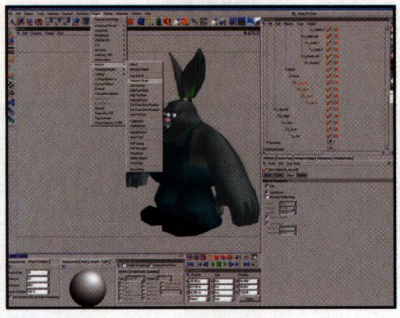
Part 1: Building the skeleton

To animate a single mesh character, you first need a skeleton to deform your mesh...

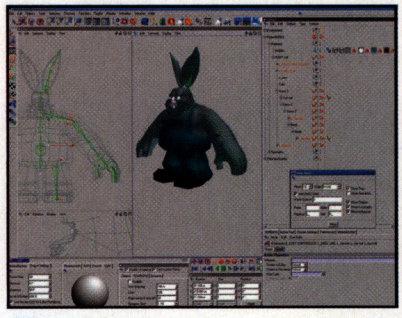
1 First, you need a model, which is a challenge in itself when using Sketch and Toon. Sketch and Toon is very choosy about surfaces and how they work together. Even with Bubba pictured here there will be the occasional gap.

2 Plan out your skeleton on paper before getting in too deep with the Bone tool. Start by creating master bones – these are single bones that stretch from the start of a specific chain to the end of that chain. For example, from the pelvic root to the top of the head, or from the hip to the toe.

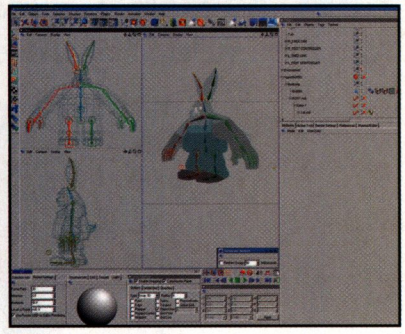
3 Next, split the master bones by holding Shift and clicking the points at which you want to divide the bone into two separate parts, and then moving the point that connects the bones. This helps preserve the desired rotation throughout the chain. Create the chains for only one side.



4 Use the SETUP Soft IK command on the chains you want to have that wobbly look, such as the ears and tail. For the leg, use Hard IK – this means you have to snap a Null object to the tip of each bone in the leg to add IK expression. Don't add targets yet because Hard IK doesn't mirror properly.



5 Now that both the Hard IK and SIK are set up for one side, you can use the Bone Mirror to automate rigging the other side simply by flipping the rig over. Use the Prefix box to add a side prefix such as R_ or use the Replace and With boxes to replace your L_ with R_, for example.



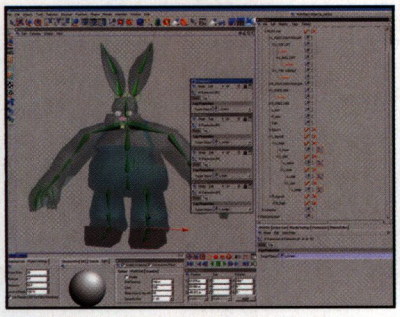
6 Once mirrored, use colour to indicate left and right as well. When the mesh is hidden, you can get disoriented as to which side is which. Using colour will ensure you always know instantly: Red=Right, Lime=Left.

Part 2: Hard IK controllers

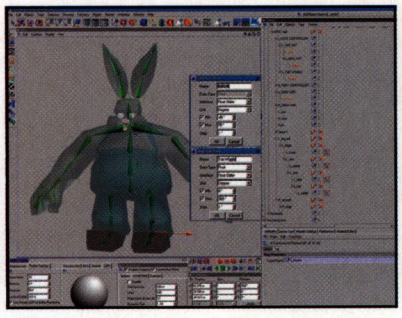
Hard IK can be tricky to use and there aren't a lot of resources out there on how to set it up...

Setting up drivers

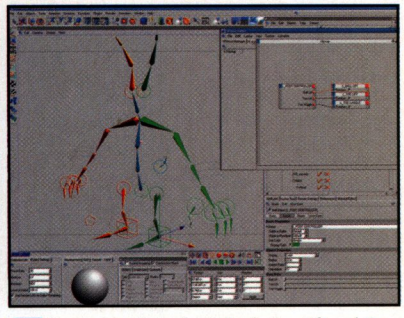
You can also set up the finger using USER data sliders as drivers to drive (relative) the finger and thumb bones. You could even create a slider to drive the spread of the fingers using this same method but on the 'H' axis rather than 'P'. If sliders are set up correctly, they are very easy to control and, using keyframe selections, can be very easy to record in Autokey mode.



1 Next, you'll need to copy each of the Null object joints in the leg outside of the hierarchy. The IK expression can be deleted from these copies. You can now use these as the targets for the IK expressions. Make another copy of the Ankle target and rename it Foot Controller.

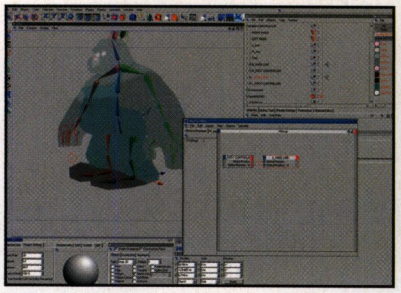


2 Copy the Ball target twice naming one Ball Lift and the other Toe Wiggle. Place the Ankle target into the Ball Lift, and the Toe target into the Toe Wiggle. Copy the Toe target, renaming it Toe Lift, and place the Ball Lift and the Ball target inside. Place Toe Wiggle and Toe Lift in the Foot Controller.

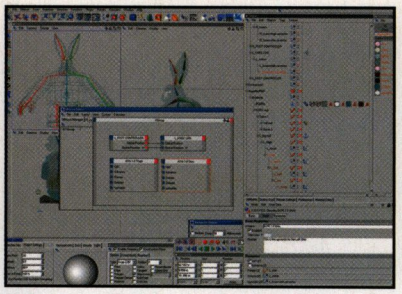


3 Create user datas for Ball Lift, Toe Lift and Toe Wiggle and use the Set driver on the sliders to then Set driven (relative) the 'P' axis of the corresponding Null object. This enables you to use Float sliders to control the foot rather then having to select the goals.

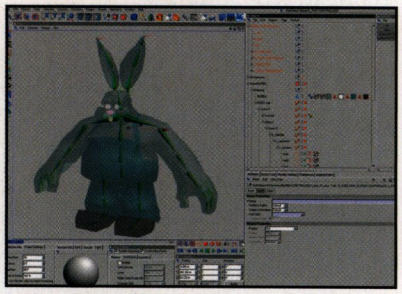
Hard IK controllers continued...



4 It's time to automate the knee, which will serve as your upvector – it can't be a child as some rotation may screw up the location of the upvector to the bone. A simple XPresso expression links the global position and only the global P rotation.



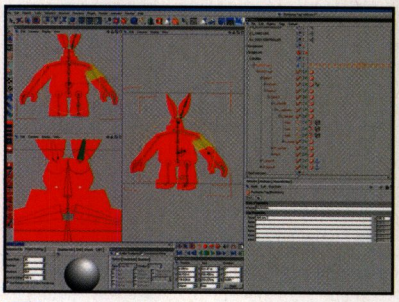
5 The knee requires an upvector. You'll need to use Yasuhiro Nishi's Advanced Target Node 1.0 making sure you turn on 'UpY'. The pointer is the bone which points to its joint; the upholder is the knee target – pull this out in front of the rig.



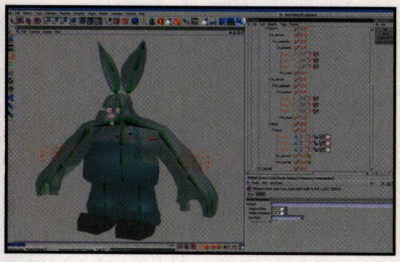
6 Create a new Null and use snap to locate it at the same point as the Root bone. Name it Bubba Controller. Drop your foot controllers and knee into the Bubba Controller. The SIK targets can also be placed in here or you can just delete them.

Part 3: Connecting the bones to the mesh

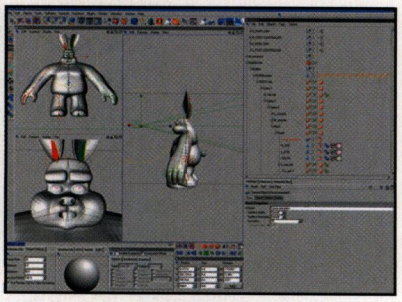
You have a skeleton but it doesn't affect your mesh. This is what you do next...



1 Select the Root bone, add a restriction tag and then right-click to copy tag to children. All bones must have a restriction tag even if the tag is left empty. You'll find it easier to set selection tags from these than to paint CB maps for each bone.



2 The eyes, teeth and splines must be added inside the rig so that they'll move correctly with the head and arms. However, you don't want them to deform, so a stop tag should be added. Check Stop Deformers and on the splines make sure Stop Generators is on or they won't render because of the Hypernurbs.



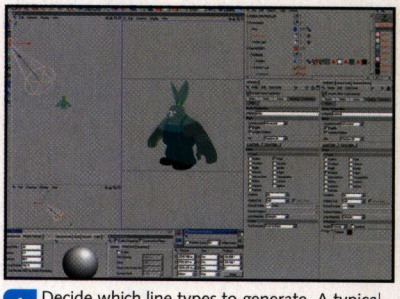
3 Place a camera as child to the Head bone, aiming at the face of the character. This way you can focus solely on animating the body and then animating the face, but without having to move a camera to get clear angles of the face.

Part 4: Rendering preparation

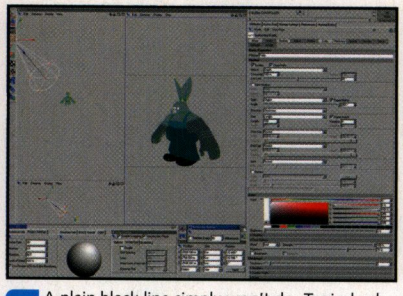
Before you animate, get the Sketch styles out of the way in a nice simple clean pose...

Different strokes

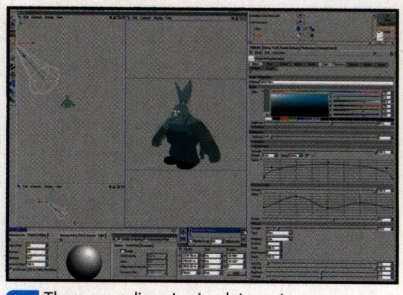
Strokes should only be used if a specific modifier requires an effect along the entire line – strokes are generally much slower to render. However, one advantage strokes do have is Stroke Coherency through Frame Match mode.



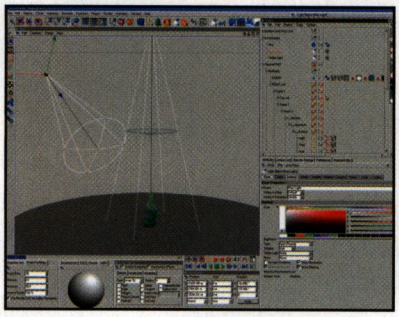
1 Decide which line types to generate. A typical cartoony style uses folds, but we also want to use the material selections to generate lines around the different textures. Sketch will need to know which takes priority, so use two separate tags, with the material as the right-most of the two.



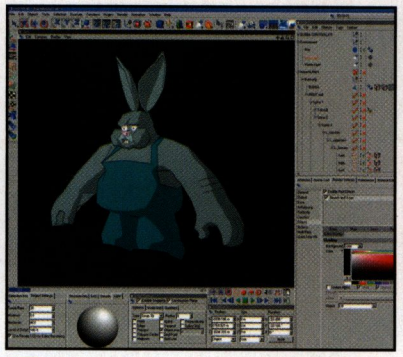
2 A plain black line simply won't do. Typical cel-shaded cartoons have a very thin crisp but weighted line. Animators try to weight the line thicker at the bottom or an area to create the illusion of weight and shadow. Screen angle will be best for that – note the spline curve and angle.



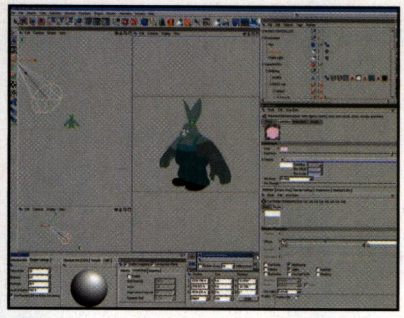
3 There are splines to simulate cartoony arm hairs, which need their own sketch material. Use the same screen angle settings as well as an Along Stroke modifier for thickness. The Folds line material gets its colour from the surfaces that the lines are on, using the From Surface modifier.



4 Lines aren't the only thing you need to consider. Hard shading is usually balanced out by smoother shading in the background. A visible light directly above offers a soft halo, and then the main light shows your character.



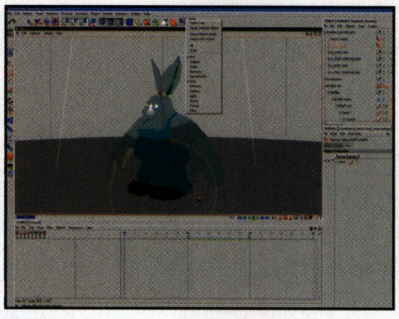
5 With lighting done, turn off shading in the render tab and change the background shading to whatever colour you desire.



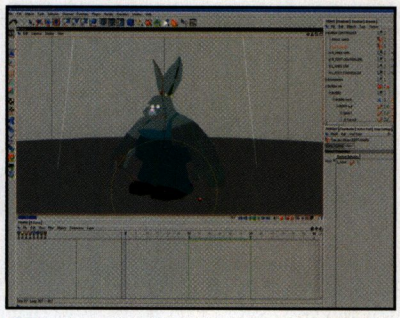
6 In the Luminance tab, set the colour you desire and set mode to Multiply. Then add a cel shader. Turn off the Camera button, and turn on Backfacing and Lights. Exclude the visible light because you don't want it lighting your object.

Part 5: Animation preparation

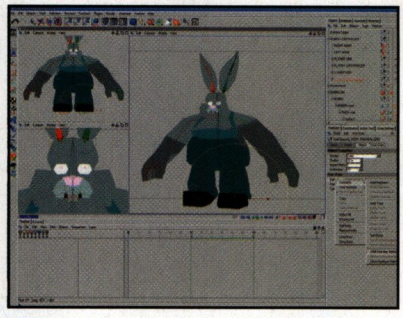
There are a few things you can do to make animation easier...



1 Use the Selection filter to make sure you can't select anything except what is necessary to animate your rig. This will prevent you from messing up other things by accident.



2 While many prefer to keyframe manually, since you're using user data you'll find it easier to use autokeyframe. Turn off scale as well, because scale won't be animated.



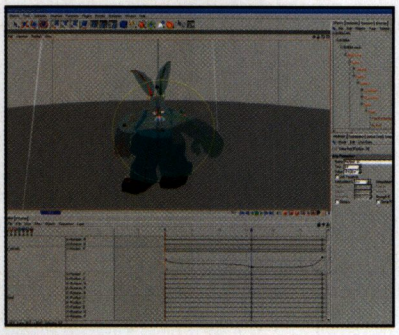
3 By using autokeying you can set to record selection objects and their contents all at once, and set User Data to record automatically using keyframe selection in the Attributes Manager.

Part 6: Animating your character

Make really dynamic poses and act out through your character...

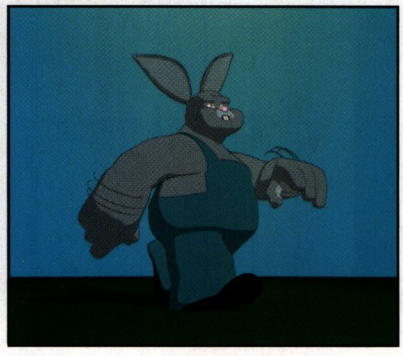
Linear mode

Try animating in Linear mode for your initial poses – it guarantees that the poses are misleading your perception of timing and movement. Once your poses are in place, see which areas shouldn't be linear or held and convert them to soft or custom interpolation to fine-tune and tweak. Make sure your poses have clear silhouettes and are easy to read.



1 And now for your magic work: animation. First, thumbnail out what you want your character to do. Then you should begin by recording the key poses of your overall animation. Then go back through on a second, and sometimes third, pass adding more each time.

2 Now's your chance to render out in whatever format is needed. What's that? Your feature film resolution renders the lines totally differently than your test renders in the editor? The solution is probably that you need to turn on Resolution Independence in the render settings and set the resolution in your editor settings.



3 Render your little piece of magic. For extra crisp lines, render using the Post Effect setting in Sketch and Toon. This will enable you to render the lines as a totally separate image or movie which you can composite later. ca-p

Time Line
Layer1
Layer 2
Eyes
Mouth
1.
2.
3.
$
$!
Colour Swatches
Document
Size :
Background :
Frame Rate :
25
fps
Publish :
Flash Player 8

HOW TO GET AHEAD IN ANIMATION

Competition for the best jobs in digital animation is fierce, so we ask some of the industry's big hitters for their advice on getting noticed...

Words: Mark Penfold

With the arrival of ever-faster hardware and a brace of software packages capable of exploiting that power, digital animation is rapidly expanding. At the same time, animation courses in the UK are producing enough graduates to fill each position something like three times over, so you have to present potential employers with a proposition they can't refuse.

It's crucial to remember that employers are hungry for new talent – the quality of their output and the future of the industry depends upon it. Tim Searle, of Triffic Films and *2DTV* fame, puts things in perspective: "Competition is very tough, but it's always been like that. Anything worth doing is going to be competitive."

As head of animation at Tippett Studios – the people behind the machine city in *Matrix Revolutions* and the forthcoming blockbuster *Hellboy* – Don Howe needs to be certain a candidate has what it takes. "We don't like taking risks," says Don. "If we have a shot that isn't working, the worst possible situation is where the effects supervisor asks a team member to give the scene more depth and the artist just doesn't get what's being asked for."

Don continues: "The most important thing is, do you have the creative depths to draw on? There are plenty of über-geeks that can work the software, but are you an artist?" This point comes up again and again. Satoko Iinuma, 3D Producer at The Mill, sees anything up to 20 showreels a week: "The key thing is having a good eye – being able to frame an image well. If we see anything we like on a reel, we'll usually get the person in to talk about their work."

Specialised roles

Animation is a highly technical art that encompasses a number of subsidiary disciplines, each of which could take a lifetime to master. Consequently, pipelines tend towards specialisation. Mike Milne of Framestore CFC explains: "Because we work mainly on movie projects, we're looking for specialists. That's just the way a film production pipeline works: the lighting is separate from the rigging, which is separate from the animation, and so on."

In this type of environment, a generalist may come a cropper: "The problem with people who say they're good at everything is, where do you put them? It's much easier to find a niche for someone who's expressed a preference." Meanwhile, "If you're talking about a smaller outfit, or perhaps Framestore's own commercials unit, a generalist will be better appreciated there."

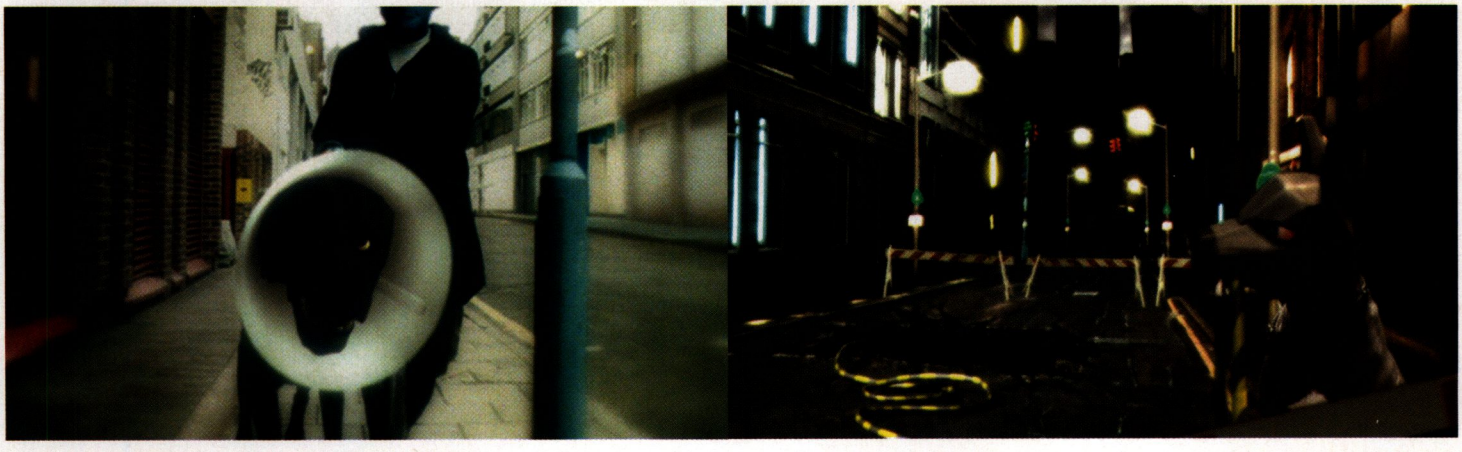
Dividing animation roles into their various departments gives you a neat way to think about your own abilities. This will be essential in determining where to apply, what to include on your reel and, most importantly, what you'll be good at.

One area is the most difficult and therefore specialised, as Mike Milne elucidates, "Animators are always specialists – you have to specialise to get anywhere, because it demands such dedication. In 15 years I've found just six truly gifted animators and they've all gone on to great things, half of them at Industrial Light & Magic."

Chris Knott, VFX Supervisor at Passion Pictures, has some good advice: "Pitching yourself at the right level is also important – there are lots of small, funky companies which offer temporary work, and can give the newcomer that all-important first chance."

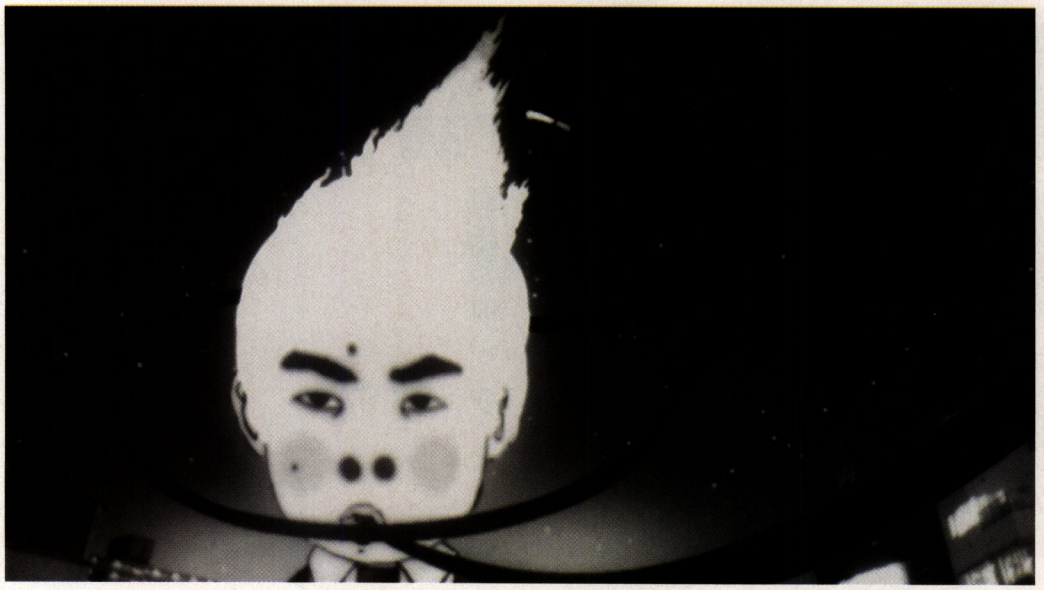
Reel them in

Once you've done your research, there's a fistful of rules to obey if you want your reel to do you justice. First, keep it brief: "No more



Below: The Offspring's latest promo, *Hit That*, was directed by up-and-coming duo John Williams and David Lea at Passion Pictures. Both directors are relatively recent graduates of the Newport Film School's animation course, proving that new talent rises to the top with remarkable rapidity.

Main illustration: Tado [w] www.tado.co.uk



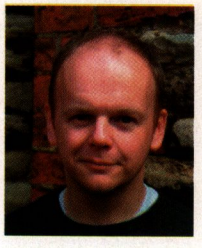
Left: Directed by Woof Wan Bau at Nexus London, this promo for FourTet's *My Angel Rocks Back & Forth* won this year's British Animation Award for Favourite Music Video. Chris O'Reilly, top brass at Nexus, highlights the truly international search for talent: "It's global. We have worked with animators from France, Finland, Sweden, the US, Canada and Japan, to name but a few."

Below: For this PlayStation ad, 3D artist Jordi Bares of The Mill used *Massive* software to create thousands of digital characters climbing and running through the streets of Rio. Now a producer in The Mill's 3D department, Satoko Iinuma started out as a runner: "It's hard work but it's a great way to learn the business and get to know the people."

Opposite page: The Mill's work has been widely praised for a realism which demands intimate familiarity with the cutting edge of 3D software. For 3D Producer Satoko Iinuma, software skills are not the final word: "In production, we generally use *Maya* and *XSI*, so you need to show you're competent with those packages. The harder part is being able to come up with a beautiful picture."

JibJab founders, Gregg and Evan Spiridellis.

The Mill's 3D Producer Satoko Iinuma.



Tim Searle, founder of Triffic Films.

Showreel rules

Tool-up for the job...

A good showreel is not optional. Chris Knott makes things clear: "The best way to get in is to blow me away with your work." Top animation recruitment agent David Sayeed recommends that you "don't send it out till you can't fault it."

Again, targeting your reel is important and that extends to the software you use. David Sayeed lays out the field like this: "For film and TV it's *Maya, XSI, 3ds max* then *Houdini*. For games, *3ds max* comes first and *Houdini* isn't really used."

If you're looking for work on the Web then here's Gregg Spiridellis' thoughts on software: "For us, *Flash* is critical because it's the primary software tool we use in production." Chris Knott gives Passion Pictures' preferences: "We use *LightWave* for modelling, along with *Deep Paint* and *Messiah* for animation – *After Effects* and *Combustion* for compositing. Good reels with those names on make me sit up." Aardman Animations' Heather Wright has a similar list, with the industry's 3D standards creeping in: "*Maya. Photoshop. After Effects. Deep Paint. Mental Ray.*"

Currently working on the latest series of *2DTV*, Tim Searle has a slightly different shopping list: "We currently use *CelAction 2D* extensively. If someone's got *Cel* skills, that helps; but it's not essential. Adobe *Illustrator* is one of those tools that not enough people can use properly."

than three to four minutes. Anyone watching it will know within 30 seconds whether it's worth seeing the rest," says Mike Milne.

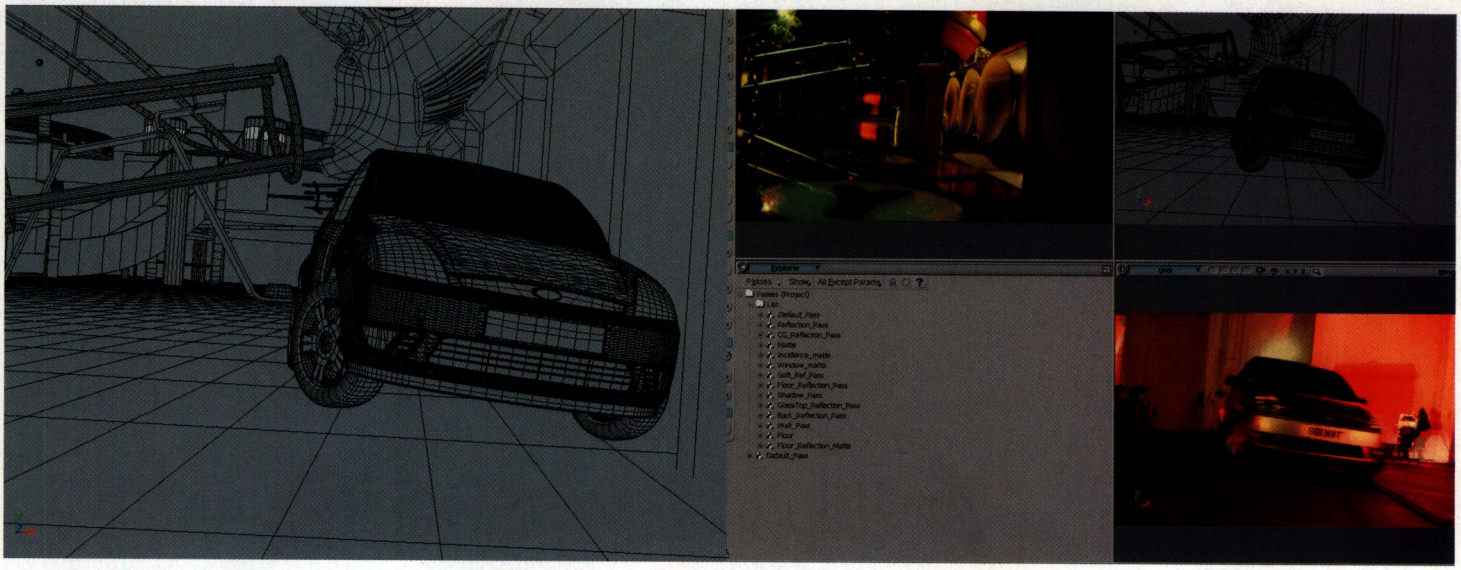
David Sayeed, of recruitment consultants Animated People, adds to this: "Always include a 'shotlist': the ideal format is a Word document with thumbnails for each shot on the left and text saying how you did that shot on the right. You're trying to make it easy for the viewer to see your talent, so don't have long credits before the action starts."

Think about what you include. "People put lots of mediocre work on their showreels that doesn't stress any particular skill," says Satoko, and she isn't alone in feeling that a bloated reel does you no favours. Don Howe agrees: "It's better to send in a well-animated character which is just grey-shaded rather than spend time worrying about textures and lighting. If we hire you, you'll only be animating, and someone else will do the rest."

Don goes even further, saying that the inclusion of mediocre material next to outstanding work is enough to lose you the job: "That calls into doubt their judgement, their ability to tell good from bad."

On the job

The pace of professional production makes undergraduate life look positively sedate, so stepping straight into a high-profile role on a big production is almost unheard of. It does happen though, even at studios like Framestore CFC. However, animators need to hit the ground running, as Mike Milne explains: "We don't really teach animation and this will usually be the case; we're just working too fast for that. We would expect applicants to have at least a BA, because it takes that long for anyone to crack animation, to fully understand the link between motion and function curves." Other tasks, those that



fall under the general heading of Technical Direction, offer more flexibility. "For most of the rest of the work we expect familiarity with the software and the terminology but not the specialist techniques – they can be taught," says Mike Milne.

Of course, the Web is a different proposition altogether. Gregg Spiridellis of top animation site JibJab explains: "Buy a copy of *Flash*, make an animation and put it on the Web. If you have talent and persistence, your work will sell." Even though there might be more scope for artists to get themselves noticed on the Web, a firm grasp of your art is still essential: "If you can't draw one good picture, how are you going to draw 24 per second?"

If your face fits

The Mill's Satoko Iinuma puts things into context: "People like to work with someone they know." Chris O'Reilly of Nexus London adds, only half jokingly, "Animation production is an intensively collaborative exercise, so we prefer people not to be psychotic or too deranged."

If you want to get ahead in animation then you have to have the right attitude as well as the right skills. Gregg Spiridellis sums it all up like this: "This is a tough industry and there's no such thing as job security, but people who are talented, passionate and persistent will always rise to the top." ca-p

For more information and inspiration about getting a job in animation, visit: www.animatedpeople.com, www.tippett.com, www.framestore-cfc.com, www.mill.co.uk, www.passion-pictures.com, www.aardman.co.uk, www.nexuslondon.com, www.jibjab.com and www.triffic.co.uk

Learning the ropes

If you want to go to the top, get the right training...

Animated People's David Sayeed puts current rates for animators straight out of college at £15–20,000, rising to £20–25K with one-to-two years' experience. It's not till you have up to four years under your belt that you can expect to be earning in the region of £35,000.

With that in mind, along with the increasing burden of course fees, it pays to think long and hard about where you train. Here are some of the best courses in the country...

Bournemouth National Centre for Computer Animation
http://ncca.bournemouth.ac.uk, MA/Msc Computer Animation

Bristol School of Animation at UWE
www.uwe.ac.uk, BA (Hons) Digital Character Animation

National Film and Television School Beaconsfield
www.nftsanimation.org, MA Animation

University of Teeside
www.tees.ac.uk, BA (Hons) Digital Character Animation

Glasgow School of Art
www.gsa.ac.uk, Master of Philosophy in 2D/3D Motion Graphics

De Montfort University
www.dmu.ac.uk, BA Honours Multimedia Design

Royal College of Art
www.rca.ac.uk, MA Animation

Surrey Institute of Art and Design
www.surrart.ac.uk, BA Animation

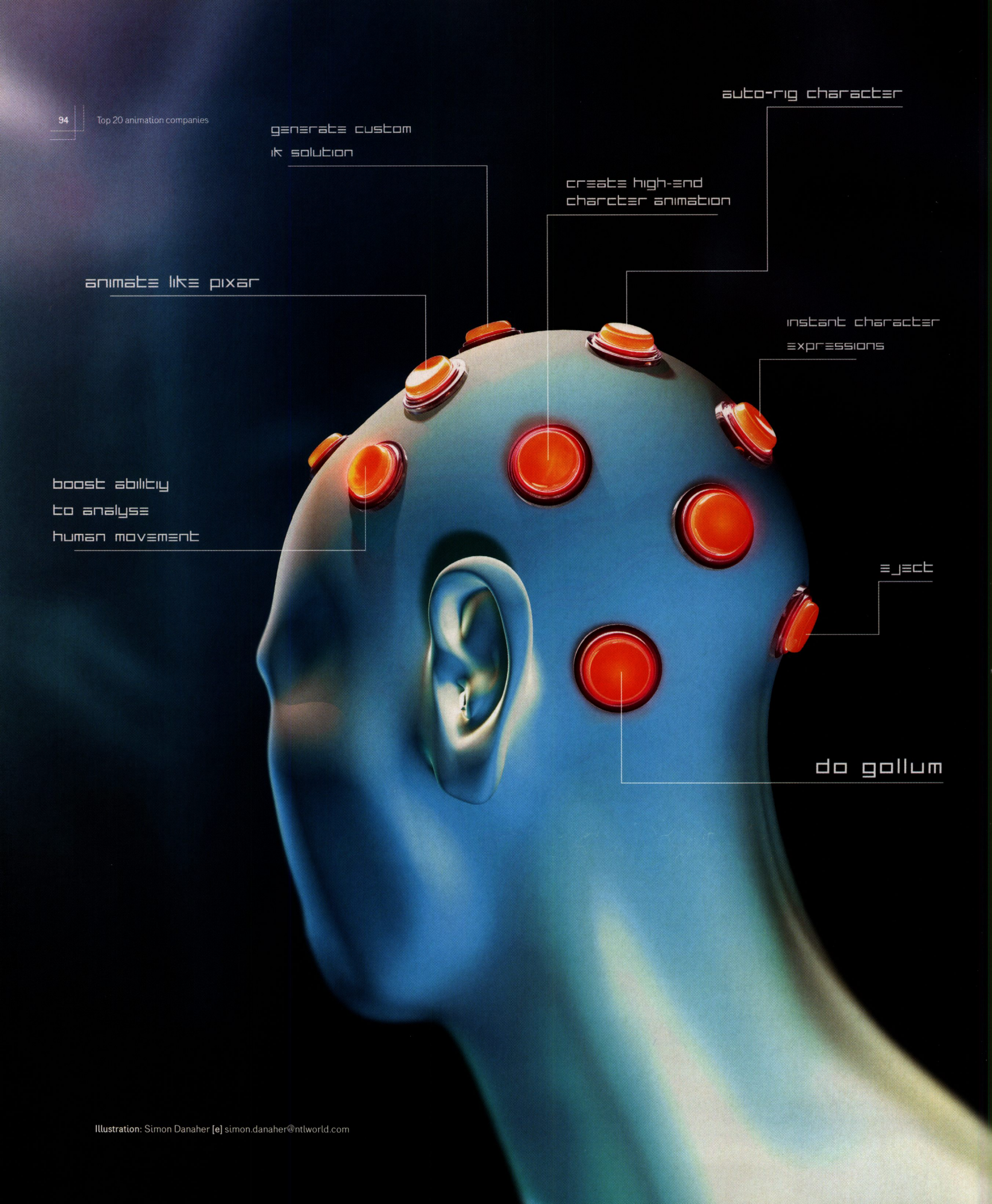


Illustration: Simon Danaher **[e]** simon.danaher@ntlworld.com

THE TOP 20 ANIMATION COMPANIES

As chosen by *Computer Arts Projects* – these are the worldwide animation companies you should be sending your CV and showreel to...

Aardman Animations Ltd

7 Gasferry Road
Bristol, BS1 6UN
United Kingdom
[t] +44 (0)117 984 8485
[w] www.aardman.com

The legendary UK-based animation and CG house needs no introduction. From the humble beginnings of *Morph* to the feature-length *Chicken Run*, the company has adopted a style that is instantly recognisable the world over. Check out our feature, beginning on page 56.

Animal Logic

Building 54/FSA #19,
Fox Studios Australia
Driver Avenue, Moore Park
NSW 1363, Australia
[t] +6 129383 4800
[w] www.animallogic.com

Responsible for some of the awesome character animation found in the groundbreaking feature film *The Matrix*, Animal Logic is at the forefront of the CG animation and production industry. The company's other projects include *Babe: Pig in the City* and the TV series *Farscape*.

Axis Animation

Suite 225, Pentagon Business Centre
Washington Street
Glasgow, G3 8AZ
United Kingdom
+44 (0)141 572 2802
www.axisanimation.co.uk

This Glasgow-based 3D animation company is one of the hottest in the UK. The studio specialises in character design, modelling, character animation, environment creation, compositing, digital cinematography and more...

Blur Studios

589 Venice Boulevard
Venice, CA 90291
USA
[t] +1 310 581 8848
[w] www.blur.com

Blur Studios, based in California, has recently completed work on *Rockfish*, a computer-animated short that was shortlisted for Oscar consideration. Check out the company's awesome showreel at its Website.

Cosgrove Hall Films

8 Albany Road, Chorlton-cum-Hardy
Manchester, M21 0AW
United Kingdom
[t] +44 (0)161 882 2500
[w] www.chf.co.uk

Cosgrove Hall Films is most famous for its work in children's television. Under the company's belt are such classics as *Danger Mouse*, *Count Duckula*, *Jamie and the Magic Torch* and *The Wind in the Willows*. Still going strong, CHF is one of the world's most respected animation companies.

Double Negative Visual Effects

77 Shaftesbury Avenue
London, W1D 5DU
United Kingdom
[t] +44 (0)20 7534 4400
[w] www.dneg.co.uk

Double Negative, a company specialising in CG animation and visual effects, is currently working on the latest Harry Potter movie – *Harry Potter and the Prisoner of Azkaban*. Completed productions include *Agent Cody Banks 2* and *Lara Croft and the Cradle of Life: Tomb Raider 2*. The company has also worked on a number of television shows including the remake of *Randall and Hopkirk (deceased)*.

Dreamworks SKG

1000 Flower Street
Glendale
CA 90201
USA
[t] +1 818 733-7000
[w] www.dreamworks.com

What can we say about this monster of a production company that you don't already know? Set up in 1994 by Steven Spielberg, Jeffrey Katzenberg and David Geffen, Dreamworks SKG is responsible for the animated blockbuster *Shrek*, and its forthcoming sequel *Shrek 2*.

Fictitious Egg

52 Old Market St
Bristol
BS2 0ER
United Kingdom
[t] +44 (0)117 925 0187
[w] www.eggtoons.com

Started in 1997 by Andy Wyatt, Fictitious Egg has grown into a thriving animation business, specialising in the creation of *Flash* animation for broadcast. The studio's recent projects include *Johnny Casanova: The Unstoppable Sex Machine* and *Pop Skool* – a series of 60-second shorts aired on BBC One on Saturday mornings. Want to know how the studio creates broadcast animation in *Flash*? Turn to page 50.

Framestore CFC

9 Noel Street
London, W1F 8GH
United Kingdom
[t] +44 (0)20 7208 2600
[w] www.framestore-cfc.com

Framestore CFC is one of the world's most renowned CG animation and visual effects companies. To date, the company's work includes the breathtaking *Walking with Dinosaurs* and *Walking with Beasts* as well as films such as *Harry Potter and the Chamber of Secrets* and *Resident Evil.*

The Hive Animation Ltd

37 Dean Street
London, W1D 4PT
United Kingdom
[t] +44 (0)20 7565 1000
[w] www.hive3d.com

The Hive is a London-based animation company specialising in everything from modelling to animated titles. Clients to date include *Top of the Pops*, Channel 5 and CNN. The company is also responsible for *Busy Buses* — a 3D-based children's television show aired in over 11 countries worldwide.

iToons Corporation

3717 N. Ravenswood, STE. 210
Chicago, IL 60613
USA
[t] +1 773 573 1103
[w] www.itoons.com

iToons is a game and animation studio, dealing with predominantly 2D content that oozes quality. With a client list including LEGO and Nickelodeon (producing games for such series as *Spongebob Squarepants* and *Ren and Stimpy*), iToons has produced a diverse range of work in both *Flash* and *Shockwave* formats.

JibJab Media Inc.

2660 2nd Street #5
Santa Monica, CA 90405
USA
[t] +1 800 777 3874
[w] www.jibjab.com

JibJab is responsible for some of the Web's most entertaining and original cartoons including *Geezers, Nasty Santa* and more. Some wonderfully satirical cut-out style cartoons can be seen at the company's site, as well as some rather dark, yet brilliantly animated, short stories. Learn more on page 16.

Jim Henson's Creature Shop

30 Oval Road, Camden
London, NW1 7DE
United Kingdom
[t] +44 (0)20 7428 4000
[w] www.creatureshop.com

Based in both London and LA, Jim Henson's Creature Shop is a company involved in not only character animation and visual effects, but also, as you'd expect, animatronics and puppeteering. Projects to date include *Dr Dolittle, Cats and Dogs, George of the Jungle* and *Lost in Space.*

The Mill

40-41 Great
Marlborough Street
London, W1F 7JQ
United Kingdom
[t] +44 (0)20 7287 4041
[w] www.millfilm.co.uk

One of the UK's most established film and CG houses, The Mill has produced animated CG content for such blockbusters as *Lara Croft: Tomb Raider, Gladiator, Pitch Black* and *Harry Potter and The Sorcerer's Stone.*

Pixar Animation Studios

1200 Park Ave.
Emeryville, CA 94608
USA
[t] +1 510 752-3000
[w] www.pixar.com

Famous for its work on Oscar-winning feature films such as *A Bug's Life* and more recently *Finding Nemo,* Pixar is currently developing its next certain blockbuster, *The Incredibles.* Headed by Apple CEO Steve Jobs, the company is probably the most respected CG production house in the world.

Rhythm and Hues

404 Jandy Place
Los Angeles, CA 90066
USA
[t] +1 310 448-7500
[w] www.rhythm.com

Rhythm and Hues is an LA-based company that's been involved with the visual effects and CG animation on such Hollywood productions as *X Men 2, Scooby Doo, Stuart Little 2* and more recently, *The Cat in the Hat.* Currently in production is a CG version of the classic cartoon strip *Garfield.*

Sony Pictures Imageworks

9050 W. Washington Blvd.
Culver City, CA 90232
USA
[t] +1 310 840-8000
[w] www.imageworks.com

Sony Pictures Imageworks is renowned for visual effects, but recently the company has put a lot of emphasis on animated shorts and feature films. *The Chubbchubbs* and *Early Bloomer* are fine examples — read more on page 74.

Spite Your Face Productions Ltd

34 York Place, Newport
South Wales, NP20 4GB
United Kingdom
[t] +44 (0)7951 849 141
[w] www.spiteyourface.co.uk

Spite Your Face Productions is an independent company specialising in short films and animations. The company is probably most famous for its work for LEGO — in which Spite Your Face created stop-motion scenes from a number of famous films (including *Star Wars* and *Monty Python and the Holy Grail*) using only the little yellow men and building bricks.

Triffic Films Ltd

6 St Pauls Court, Stony Stratford,
Bucks, MK11 1LJ
United Kingdom
[t] +44 (0)1908 261234
[w] www.triffic.co.uk

Triffic Films is one of the UK's best 2D animation houses, with an eclectic portfolio of work ranging from the title sequences of *Have I Got News For You* and *Gimme Gimme Gimme* to *2DTV* to the brand new Steve Coogan-voiced animated comedy series, *I Am Not an Animal.* Turn to page 66 for more.

Walt Disney Feature Animation

500 S. Buena Vista St
Burbank, CA, 91521 8934
USA
[t] +1 818560 8000
[w] www.disney.go.com

What can we say about Disney apart from it's the largest animation company in the world. Even though it's recently spilt from Pixar, expect the company to continue to produce stunning animated features that are well ahead of their time. ca-p

COMPUTER arts projects INTERACTIVE

On the CD

Your guide to the free software and extras given away on the cover disc...

FULL SOFTWARE WORTH $30

Plastic Animation Paper
FULL PRODUCT: Check out this exclusive full product from Krough Mortensen Animation – create fantastic 2D animations and cartoons!

iStopMotion
EXCLUSIVE DEMO: 21-day demo of this brilliant stop-motion animation application. Get your DV cam and plasticine ready and then turn to page 62 for our tutorial.

Toon Boom Express
30-DAY DEMO: To accompany our expert tutorial on animating with *Toon Boom Studio* (beginning on page 26), we bring you this 30-day demo of the awesome animation app.

Flash MX 2004
30-DAY DEMO: Take one of the best animation tools in the business for a test drive. Exclusive tutorials from JibJab, Fictitious Egg and Triffic Films begin on page 16!

Moho
DEMO: Try out this ace app from Lost Marble to animate your 2D characters using bones and joints!

Exclusive cartoons!
Watch these cartoons from Aardman Animations. On the CD we have *The Deadline* as well as a clip from the award-winning *Creature Comforts*.

Tutorial files
You'll find all the files you need to create this month's tutorials in the Software/Tutorials/In The Mag folder.

SERIAL NUMBER

You'll find the serial number for *Plastic Animation Paper* in the following folder on your CD-ROM: Software/Plastic Animation Paper/Serial.

Find out more about Plastic Animation Paper at [w] www.plasticanimationpaper.dk

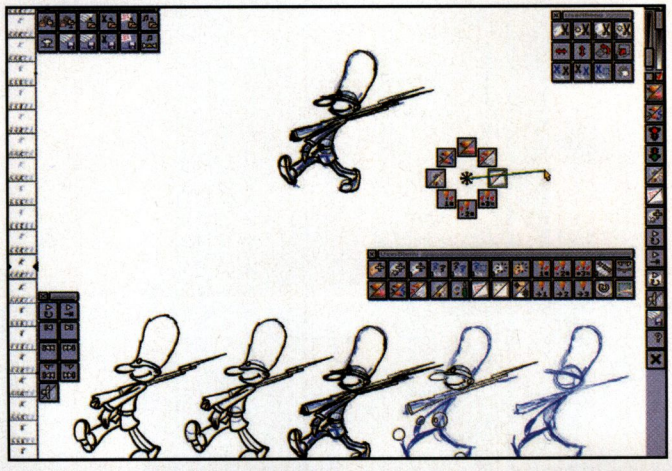
Plastic Animation Paper

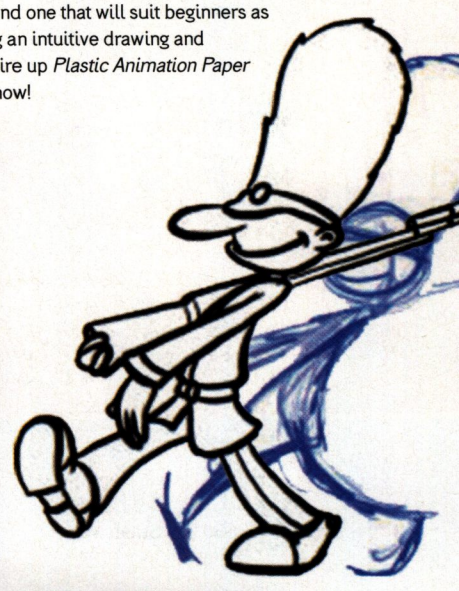
Get to grips with this fantastic 2D animation tool – free on your cover CD...

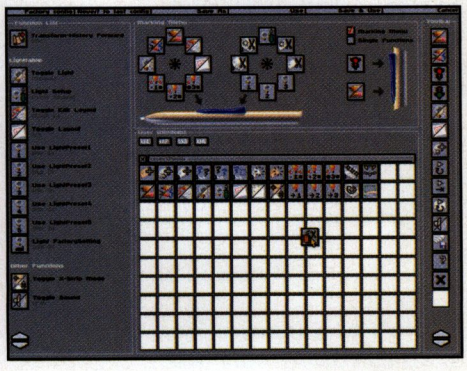
This month we have the pleasure of bringing you *Plastic Animation Paper: Shareware* – a fully-featured 2D animation tool as sold for $30. The tool is aimed at those getting to grips with the techniques involved in 2D animation, and provides all the features you need to create brilliant and dynamic 2D cartoons.

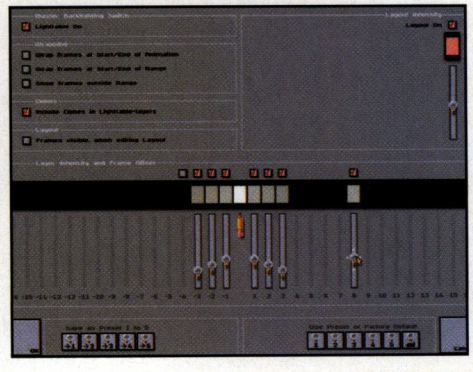
Once you've got the hang of using this fantastic tool, you may want to move on to the *Broadcast* or *Film* editions of the software (*Film* edition pictured below) – offering more tools for complex animations and enabling you to work at higher resolutions.

We think you'll agree it's a fantastic piece of animation software and one that will suit beginners as well as those wanting an intuitive drawing and animation solution. Fire up *Plastic Animation Paper* from your cover CD now!









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COMPUTER arts projects

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